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Annual Report on Forest Management 2008/09

Annual Report on Forest Management

For the year April 1, 2008
to March 31, 2009

Minister of Natural Resources
of the Province of Ontario

To his Honour
The Lieutenant-Governor of the
Province of Ontario

May it please your Honour

The undersigned begs respectfully to present to your Honour the Annual Report on Forest Management for the fiscal year beginning April 1, 2008 and ending March 31, 2009.

Linda Jeffrey
Minister

November, 2010

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The approval for timber management activities under the original 1994 Class Environmental Assessment (Class EA) under the *Environmental Assessment (EA) Act* covered nine years from 1994 to 2003. A review of the implementation of the original EA concluded in June 2003, when the Ministry of the Environment (MOE) issued a declaration order. The MOE declaration order extended and amended the 1994 Class EA approval and outlined conditions for forest management on Crown land in Ontario within the area of the undertaking (AOU). One of the conditions required the Ministry of Natural Resources (MNR) to continue to table an annual report on forest management in the provincial legislature.

This is the MNR's fourteenth annual report on forest management under an EA approval. This report follows a format which is consistent with the conditions of the 2003 Class EA approval for forest management on Crown lands in Ontario. It covers the fiscal year April 1, 2008 to March 31, 2009.

Ontario's 107.6 million hectare area is comprised of about 88.3 million hectares of land and 19.3 million hectares of water. The AOU, where most forest management activities on Crown land occur, totals 36.5 million hectares of forest. Productive forest on Crown land in the AOU covers about 26.2 million hectares, with only 18.8 million hectares of this area eligible for forest management activities. The focus of this annual report is to provide information on the activities carried out on the eligible 18.8 million hectares of Crown forest in 2008/09.

The Crown Forest Sustainability Act (CFSA) provides for two types of licences governing the use of forest resources in Ontario, Forest Resource Licences and Sustainable Forest Licences. In 2008/09, there were a total of 3,872 licences in place in Ontario.

The CFSA requires a portion of the money received from the harvest of Crown forests to be designated exclusively for forest renewal activities. The government of Ontario received a total of approximately $96 million from timber sales, of which approximately $64 million went

directly to funds designated for the maintenance and renewal of the forest, and for work associated with ensuring the future of the forest.

In 2008/09, forest fires occurred on only 128 hectares of productive forest in the AOU. Other natural disturbance events such as weather, insect and disease activity in the AOU resulted in wood fibre growth loss and mortality.

Harvesting activities took place on 123,387 hectares of forest in 2008/09, generating approximately 12 million cubic metres of wood. In 2008/09, thirty-eight management units in the Boreal forest region reported average clearcut sizes ranging from 79 to 1,300 hectares. There were 1,044 active clearcuts during the year. Of these clearcuts, 58 (6%) had current harvest areas larger than 260 hectares in size.

Nine management units within the Great Lakes-St. Lawrence Forest reported average clearcut sizes from 46 to 726 hectares. There were 670 active clearcuts created in this region during the year, 13 (2%) of which had current harvest areas larger than 260 hectares.

Renewal of the forest occurs both naturally and with assistance. In 2008/09, natural regeneration, both even and uneven-aged, took place on 87,700 hectares of land. Assisted renewal was carried out on 82,219 hectares. Site preparation activities, through mechanical means and the use of herbicides, were completed on another 46,885 hectares. Tending activities were also conducted to improve the quality and growth of some areas of the forest. During 2008/09, tending activities such as aerial chemical tending, spacing and improvement cutting were carried out on 59,861 hectares of forest.

Free-To-Grow (FTG) assessments are an effectiveness monitoring tool that indicate the success of silvicultural treatments and provide information to project the future forest condition. In 2008/09, approximately 162,000 hectares were assessed. Of the total area assessed for FTG, 93 percent was approved as having met an acceptable standard. The remaining 7 percent either required more time to meet the height standard, additional tending to deal with competing vegetation, or a re-treatment.

Forest management operations require a complex system of primary, branch (secondary) and operational roads. A total of 560 kilometres of new primary and branch roads were constructed in Ontario forests. In 2008/09, the MNR provided approximately $75 million

dollars for road construction and maintenance activities. Maintenance work occurred on 27,644 kilometres of road.

The forest industry is required to report the results of their compliance inspections to the MNR. The MNR conducts inspections to verify all instances of non-compliance reported by companies. The MNR also carries out random and other planned inspections of forest operations. Of the 3,874 inspections undertaken across the province, companies conducted 2,999 and the MNR completed 875. The vast majority of the inspections reported compliant operations. A total of 155 remedial actions were applied by the MNR, including warnings, stop work orders and administrative penalties.

All management units within the AOU must be audited at least once every five years. In 2008/09, Independent Forest Audits were undertaken on five management units. Audit reports were prepared for the Dryden, Kenora, Nighthawk, Ottawa Valley and White River forests. Four of the five audit reports concluded that the forests were being managed in general compliance with legislation and policy, with licence requirements, and with principles of sustainable forest management during the term of the audit. In all cases, the auditors recommended the sustainable forest licence be extended for a further five-year term. In one case (Dryden Forest) the auditors recommended that further seedling competition control on areas regenerated following harvest be undertaken prior to the Minister extending the licence.

Forest certification involves an independent third party evaluating forest management systems and/or operations against a prescribed ecological, economic and social standard. During 2008/09, the Big Pic and Wabigoon forests were certified to the Forest Stewardship Council standard for the first time. All previously registered/ certified forests continued efforts to demonstrate ongoing conformance to their selected certification systems during the fiscal year.

A primary monitoring responsibility of the MNR is to assess the effects of forest management activities on the forest ecosystem over the long term. This report describes policies, procedures, scientific studies and research that the MNR is undertaking to ensure that forest management guides, data, methodologies, and underlying science are available to effectively monitor and manage forest management activities. The final chapter of this report describes the efforts of MNR districts, the forest industry, and Aboriginal communities to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits derived through forest management planning.

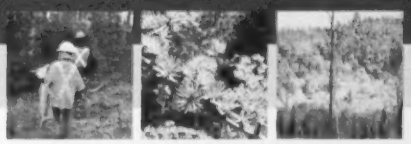
In 2003 an Environmental Assessment (EA) declaration order extended and amended the 1994 Environmental Assessment Act approval to allow the MNR to continue forest management on Crown lands in Ontario, subject to certain conditions. This declaration order (as amended, MNR 71/2) covers a wide range of activities relating to forest access, harvest, renewal, maintenance and planning on Crown land. This is the fifth annual report that has been produced consistent with the current EA declaration order.

Annual Report on Forest Management

This is the fourteenth annual report on forest management, covering the period April 1, 2008 to March 31, 2009. This report contains, in part, a summary and analysis of 46 management unit annual reports which were submitted to the MNR in November 2009. Unless otherwise stated, information portrayed in tables and figures in this provincial annual report are sourced from the management unit annual reports. The data is subject to ongoing improvement and the reader is advised that changes in data may occur as improvements are made to the dataset. New or updated data and information submitted since the previous annual report on forest management are included in this report. Errors or omissions noted since the publication of the previous report are also corrected or updated in this report. Minimal rounding errors may occur in this report due to the precision of the numbers being displayed.

Overview

This annual report provides information to help in understanding how Ontario's Crown forests are being managed, as well as baseline information to compare with future forest management activities and annual reports. Five-year tables and graphs are included in this report to provide updated information and a means to view and assess trends in the data.



Crown forest resources within the Area of Undertaking (AOU) and their associated programs are the main focus for this annual report. MNR programs that deal with private land or provincial parks are not reported in this document. More information about MNR programs not related to Crown forest resources is available at http://www.ontario.ca/forests

The chapters of this annual report are described as follows:

- Chapter 1 provides a background summary of the forests of Ontario and the legislative framework which regulated forest management planning activities in 2008/09;
- Chapter 2 summarizes forest industry output and employment, Ontario's stumpage and the licence system;
- Chapter 3 summarizes forest disturbances in Ontario, including fire, severe weather, insects and disease;
- Chapter 4 describes the silvicultural systems used in Ontario and summarizes forest harvest activities;
- Chapter 5 summarizes forest renewal efforts and silvicultural effectiveness monitoring results;
- Chapter 6 presents a summary of road construction and maintenance activities, and the funding provided for these activities;
- Chapter 7 presents a description of the system employed by the MNR to monitor operational compliance with legislation and in accordance with approved plans;
- Chapter 8 describes and summarizes the results of Ontario's Independent Forest Audit Program;
- Chapter 9 outlines the status of forest certification in Ontario;
- Chapter 10 reports on selected MNR research, scientific studies, and technical and policy development programs; and
- Chapter 11 concludes with an update on the MNR's progress in negotiations with Aboriginal peoples regarding opportunities for increased participation in the benefits provided through forest management planning.

Overview of Ontario's Forests

Throughout this document, Crown land refers to land vested in Her Majesty in right of Ontario and, in general, managed by the MNR. Statistics found in this chapter are from provincial inventories compiled in *Forest Resources of Ontario 2006*. *Forest Resources of Ontario 2006* should be consulted for a more complete description and summarization of the provincial inventories.

Ontario is approximately 107.6 million hectares in size; 88.3 million hectares of this area is land and 19.3 million hectares is water. Figure 1a illustrates the broad land classes in Ontario. Non-productive and productive forests comprise over sixty-six percent of the province (Figure 1b). This is a significantly higher proportion than the remainder of Canada, where forests represent only forty-two percent of the country's total area.

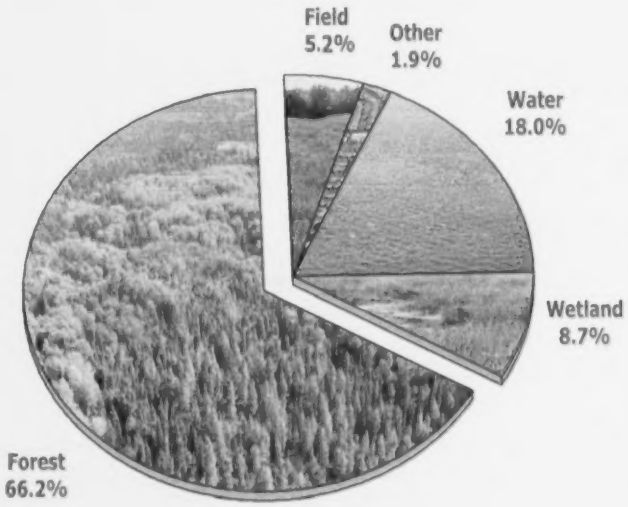
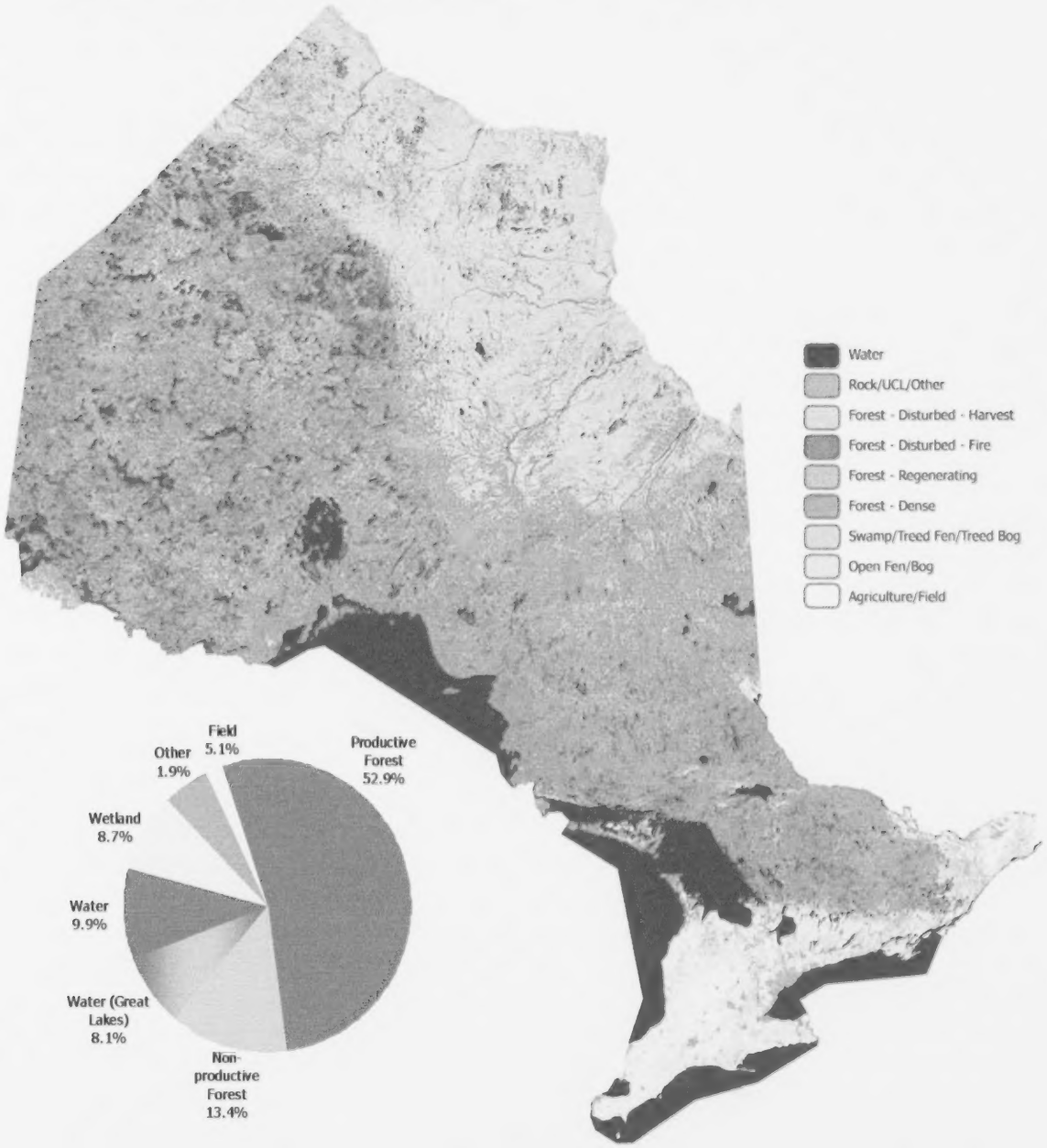


Figure 1a - Total land and water area by land classes in Ontario

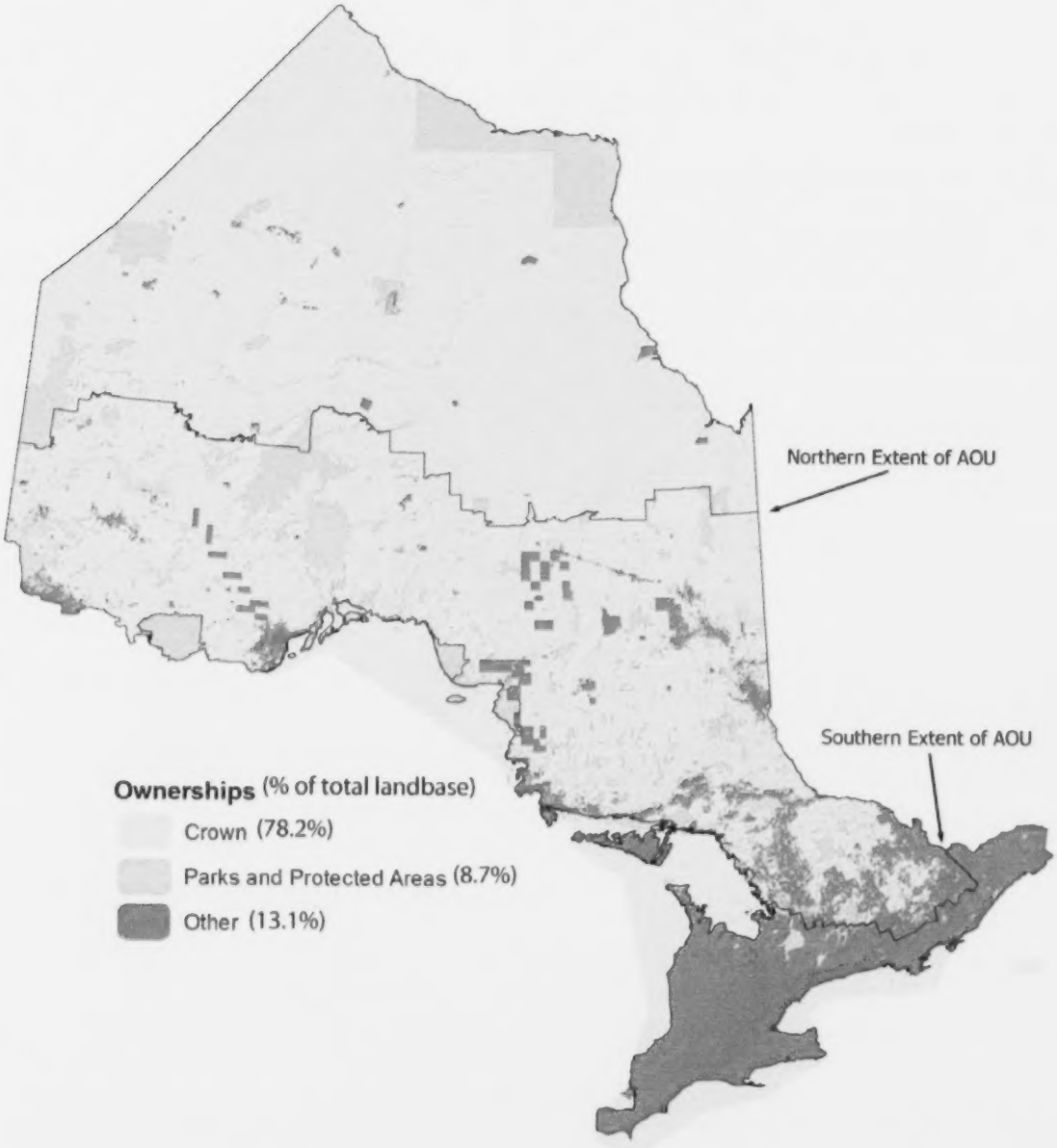
Three major land ownership categories are described in this chapter - Crown, parks, and private or other owners (Table 1a). Seventy-eight percent of the province's area is Crown or publicly-owned land and water (Figure 1c). Provincial and national parks cover an additional nine percent, and privately or federally-owned land and water encompasses the remaining thirteen percent.

Figure 1b - Total provincial area by land class



Note: The pie chart above lumps productive (disturbed harvest and fire, regenerating, dense etc) and non productive forest types (swamp, treed and open fen, bog etc) and defines water into less broad categories such as wetlands, water (lakes and rivers) and Ontario's great lakes.

Figure 1c - Total provincial area by ownership



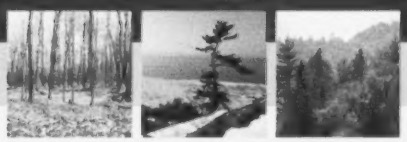


Table 1a - Total provincial area by land class (satellite classifications)

Area in thousands of hectares

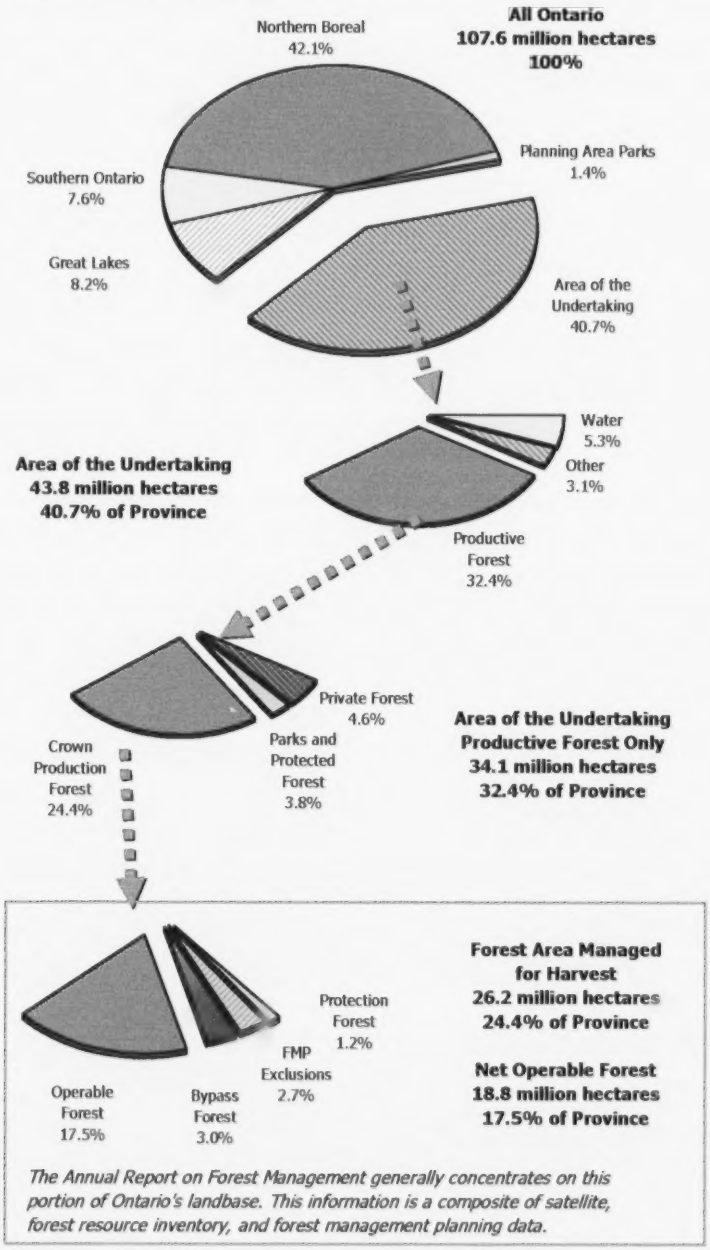
Land Class[1]	Total Provincial Area				Area of the Undertaking (AOU)			
	Crown	Protected Areas	Other	Total	Crown	Protected Areas	Other	Total
Non-productive Forest								
Swamp	1.2	1.8	118.4	121.4	0.0	0.3	19.5	19.9
Treed Bog & Fen	12,757.0	1,114.3	391.8	14,263.1	1,337.2	167.3	170.8	1,675.2
Subtotal:	12,758.2	1,116.1	510.2	14,384.5	1,337.2	167.6	190.3	1,695.1
Productive Forest								
Dense Deciduous	3,235.0	524.9	1,912.1	5,672.0	2,942.7	295.6	1,174.8	4,413.1
Dense Conifer	13,513.7	1,426.7	1,069.8	16,010.1	7,702.8	949.4	740.1	9,392.3
Mixed Forest	11,617.5	1,534.6	2,657.1	15,809.2	9,463.0	1,011.3	1,940.7	12,415.0
Sparse Forest	11,350.6	1,109.9	1,206.3	13,666.7	4,517.6	587.7	913.5	6,018.7
Disturbance - Harvest	2,042.1	32.9	189.9	2,264.9	2,040.8	32.1	162.5	2,235.5
Disturbance - Fire	1,893.8	236.7	42.2	2,172.7	207.1	74.0	4.7	285.9
Regenerating Forest	1,097.4	99.1	52.9	1,249.4	23.2	5.6	4.2	33.0
Subtotal:	44,750.0	4,964.8	7,130.2	56,845.0	26,897.3	2,955.7	4,940.5	34,793.5
All Forest total:	**57,508.2**	**6,081.0**	**7,640.4**	**71,229.5**	**28,234.5**	**3,123.3**	**5,130.8**	**36,488.6**
Non-forested Land/Water								
Water (Great Lakes)	8,517.3	169.8	0.0	8,687.1	0.0	0.0	0.0	0.0
Water	9,118.0	1,559.2	0.0	10,677.2	4,833.1	883.9	0.0	5,716.9
Wetland	8,175.7	1,065.6	130.9	9,372.2	271.0	60.7	34.0	365.7
Rock	258.6	105.0	183.3	546.8	103.9	58.3	115.1	277.3
Field/Agriculture	27.5	5.6	5,501.3	5,534.4	16.1	0.8	571.1	587.9
UCL	56.5	2.8	536.7	596.0	41.9	2.0	148.2	192.1
Other	480.0	337.2	93.6	910.8	111.7	31.5	36.6	179.9
Subtotal:	26,633.6	3,245.4	6,445.7	36,324.6	5,377.7	1,037.2	905.0	7,319.8
Grand Total:	**84,141.7**	**9,326.3**	**14,086.1**	**107,554.2**	**33,612.2**	**4,160.5**	**6,035.8**	**43,808.4**

[1] The information reported is updated on a 5 year cycle, and will differ slightly from inventory summaries due to source

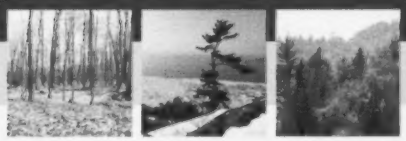
The forest area managed for harvest in Ontario is 26.2 million hectares in size. Within this area the net forest area available for forest operations is limited to 18.8 million hectares, or 17.5 percent of Ontario (Figure1d).

For forest management purposes, the province is partitioned geographically, depending on the context. Some administrative units referenced in this report include management units, districts and regions.

Figure 1d - Ontario's Landbase



The Annual Report on Forest Management generally concentrates on this portion of Ontario's landbase. This information is a composite of satellite, forest resource inventory, and forest management planning data.

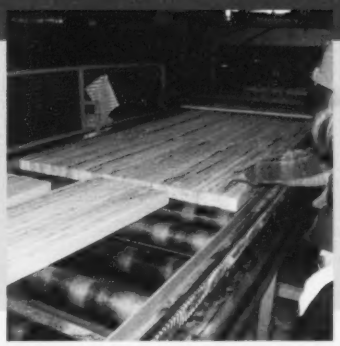


Overview of the Forest Management Planning Process

The *Crown Forest Sustainability Act* (CFSA), which came into effect in 1994, requires anyone operating in an Ontario Crown forest to ensure the long-term health of the forest so that the benefits from the province's forests are available to future generations. The CFSA requires that an approved Forest Management Plan (FMP) be in place for each management unit. A FMP describes the values of the forest in a management unit, as well as the harvesting, renewal, and other forest management activities that will occur. In 2008/09, seven FMPs were approved and fully implemented under the *Forest Management Planning Manual 2004*. Detailed technical direction for the 2008/09 management unit annual reports were provided through the *Forest Management Planning Manual for Ontario's Crown Forests 2009*.

The *Forest Information Manual* (FIM) is one of four regulatory manuals required by the CFSA. This manual describes the requirements for exchanging information concerning the management of Crown forests between the forest industry and the MNR. In 2007, a new version of the FIM was approved. To facilitate information exchange between the MNR and the forest industry, a new set of FIM technical specifications to support management unit annual reporting was also produced. These technical specifications were used by the MNR and the forest industry during the 2008/09 reporting period.

To learn more about the forest management process please visit:
http://www.ontario.ca/forests



Overview of the Forest Products Industry

Ontario's forests supply the basic resources for a variety of industries including lumber, structural board, pulp, paper, and newsprint. In addition, facilities that support forest activities and numerous service industries also depend on Crown forests.

The forest products industry is comprised of logging, wood products and paper manufacturing sectors, plus other related industries. The logging industry includes both large and small contractors, as well as large and small mill-owned operations. Contractors may work independently or directly for company-owned mills.

The wood product manufacturing industries include primary manufacturing businesses such as sawmills, veneer mills, and structural board plants producing both construction materials and specialty wood products from raw wood fibre (trees). The capital investments in these facilities range from a few thousand dollars to over $250 million. The value-added wood product industry further re-manufactures primary wood products such as lumber into various higher value wood products such as millwork (doors and windows), cabinetry, architectural woodwork, pre-fabricated housing, etc. The revenue generated from the sale of products manufactured by the wood industries includes sales from primary manufacturers as well as the value-added wood product industries. In Ontario, approximately 56% of forest product revenue from wood product manufacturing is generated from the sale of value-added wood products.

The paper industries also include primary and secondary or value-added manufacturing. Primary pulp mills produce pulp for sale to paper manufacturers in Ontario and throughout the world. Primary paper manufacturers produce products such as newsprint and various types of papers such as uncoated, coated, supercalender and construction paper. Primary mills also produce linerboard and corrugated medium, which when combined produces cardboard.

Lumber mill yard in Northern Ontario

Primary mills use one or a combination of, wood chips, logs and recycled paper as their primary furnish. Secondary paper mills purchase either pulp or paper and add further value by turning out products such as book paper, labels, wrapping paper, various sanitary products, etc. In Ontario, just over 50% of the revenue generated by the paper industries comes from the value-added secondary manufacturers. Revenue from paper industry mills represents almost 55% of the value of all forest product sales.

Value added is based on the amount the industry actually contributes to the Ontario gross provincial product. Measuring and reporting value added contributions of the forest industry eliminates the double counting effect of sales between the forest products manufacturers and their suppliers.

The forest products industry employs thousands of people across Ontario. Employment in the forest industry includes direct, indirect and induced employment. Direct employment refers to employment directly related to the production of forest

products or services. As a result of this direct employment, employment is also generated in the businesses that supply goods and services to the forest sector. This is referred to as indirect employment. Finally, when these directly and indirectly generated incomes are spent and respent on a variety of items in the broader economy (e.g., food, clothing, entertainment), it gives rise to induced employment effects.

As well as being a major employer, the forest industry annually invests in capital improvements and mill expansions. The increasingly tough operating environment has impacted the industry's ability to re-invest in their operations.

Summary of Forest Sector Revenues and Value Added - 2008/09

- The industry's competitiveness has declined. The most negative influence on Canada's competitiveness is the increase in the value of the Canadian dollar which increases the cost base in U.S. dollar terms for Canadian companies;
- The Canadian dollar continued its upward rise in 2008 averaging 94 cents U.S. up from 93 cents U.S. in 2007 and 88 cents in 2006. Adding to this increasing cost base are increases in electricity and fuel costs. These extra costs, coupled with an increased level of inexpensive wood based product imports, mostly from China, are taking their toll on Ontario's forest products industry;
- The economic crisis in the U.S. economy and associated reduction in housing starts and consumption of goods and services has also negatively impacted the forest products industry in Ontario;
- Revenues from sales from Ontario's forest product sector has declined recently from $19.5 billion in 2004 to just under $14 billion in 2008 (Table 2a);
- Value added forest industry contributions to the gross provincial product has fallen steadily since 2004; and
- Value added manufacturing, excluding logging, declined to $4.6 billion in 2008/09 from $5.0 billion in 2007/08 (Table 2b).

Table 2a - Ontario forest products sector sales

Year	Value of Shipments (million $)
2004	$19,501
2005	$18,802
2006	$17,066
2007	$15,281
2008	$13,958

Source: Statistics Canada 2009

Table 2b - Distribution of manufacturing activities by sector and direct employment in each sector in 2008/09

Sector	Number of Establishments	% of Canadian Total	Number of Employees	% of Canadian Total	Manufactured Value Added (million $)	% of Canadian Total
Wood Product Manufacturing	1,673	28%	18,949	19%	$1,470	18%
Paper Manufacturing	434	45%	22,656	35%	$3,142	30%
Total	**2,107**		**41,605**		**$4,611**	

Source: Statistics Canada
Employment figures are taken from the Annual Survey of Manufacturers issued by Statistics Canada

Summary of Forest Sector Re-investment - 2008/09

- Capital and repair expenditures continue to decline year over year. The forest industry spent $907 million in capital and repair expenditures in 2008/09. This is down from $986 million spent in 2007/08, and dramatically lower from 2000/01 when the forest industry re-invested over $1.5 billion in facility (mill) repairs and new equipment.

Summary of Employment - 2008/09

- Based on 2006 Canada census data, 28 Ontario communities, mostly located in Northern Ontario, had at least 20 percent of their labour force employed in the forest industry. Appendix 4 lists these Ontario communities, shows the total labour force for each community and identifies the percentage that worked in the forest sector. The next scheduled update for Canada census data for Ontario will be in 2011;
- Employment within the forest industry was estimated at 166,000 jobs in 2008/09 (estimates include direct, indirect and induced employment); and
- The forest industry continued to experience a large number of layoffs and mill closures. 4,219 mill employees lost their jobs, compared to 5,454 job losses in 2007/08 (Table 2c).

Table 2c - Total cumulative layoffs and new jobs at Ontario forest industry mills

Sector	2004/05	2005/06	2006/07	2007/08	2008/09	Total
Sawmill Sector - Permanent	-151	-325	-170	-41	-52	-739
Sawmill Sector - Temporary	-61	-843	-3,410	-1,278	-515	-7,715
Sawmill Sector - Indefinite	0	-100	-766	-1,183	-382	-2,868
Sawmill Sector - Job Created	0	187	32	5	0	224
Pulp & Paper Sector - Permanent	-428	-1,080	-3,038	-925	-375	-5,846
Pulp & Paper Sector - Temporary	-100	-1,740	-1,280	-1,030	-2,192	-11,645
Pulp & Paper Sector - Indefinite	-65	0	-803	-205	-180	-2,343
Pulp & Paper Sector - Jobs Created	0	0	440	311	260	1,011
Board Sector - Permanent	-106	0	0	-280	0	-516
Board Sector - Temporary	0	-300	0	-115	-173	-642
Board Sector - Indefinite	-41	-249	-618	-208	-87	-1,203
Board Sector - Jobs Created	140	18	14	12	0	184
Value-Added - Permanent	0	0	-22	-41	-50	-113
Value-Added - Temporary	0	0	0	-148	-213	-361
Value-Added - Indefinite	0	0	0	0	0	0
Value-Added - Jobs Created	0	6	0	53	0	59
Total Layoffs	**-952**	**-4,637**	**-10,107**	**-5,454**	**-4,219**	**-34,101**
Total Permanent Layoffs	-685	-1,405	-3,230	-1,287	-477	-7,214
Total Indefinite Layoffs	-106	-349	-2,187	-1,596	-649	-6,524
Total Temporary Layoffs	-161	-2,883	-4,690	-2,571	-3,093	-20,363
Total New Jobs Created	140	211	486	381	260	1478

Note: Yearly summary numbers are best estimates from the information provided. Also note that temporary layoffs represent total cumulative temporary layoffs which occurred that particular year, regardless of length (i.e. days, weeks, months).

Harvest Licence System

Ontario's Crown forests are only harvested by companies or individuals that hold one of two types of licences - Sustainable Forest Licences (SFLs) or Forest Resource Licences (FRLs). Among other requirements, a SFL requires the licensee to prepare forest management plans following the direction of the *Forest Management Planning Manual for Ontario's Crown Forests*. The licensee is responsible for implementing forest management plans by carrying out access, harvest, renewal and maintenance activities. The SFL holder must follow the rules and guidelines set by the MNR to ensure sustainable forest management.

FRL holders follow forest management plans approved by the MNR and must operate to ensure the long-term health of the forest. Issuance of FRLs on lands under a SFL require an overlapping agreement since all forest resources on SFL lands have previously been licensed to the holder of the SFL. An overlapping agreement normally contains terms and conditions that companies require to conduct day to day business. The agreements also contain legal requirements that must be complied with. This licence type is commonly referred to as an overlapping FRL.

Summary of the Harvest Licence System - 2008/09

- The total number of licences issued in 2008/09 was 3,872, most of which were overlapping FRLs (Table 2d).

Table 2d - Number of active licences in 2008/09 by licence type

Licence Type	Overlapping	Not Overlapping	Total
Sustainable Forest Licence	0	43	43
FRL less than 300 hectares	3,477	57	3,534
FRL greater than 300 hectares	231	64	295
Salvage	0	0	0
Total	**3,708**	**164**	**3,872**

Ontario's Stumpage System

The Government of Ontario receives direct payments from the forest industry in the form of stumpage fees and indirect revenue from taxes. Forest companies pay a stumpage fee to the Crown for every cubic metre of timber harvested. A market-based pricing system is used by the MNR to calculate the stumpage fees that companies and individuals pay for harvesting timber from Crown land. In times of strong market prices for forest products, the stumpage system triggers higher fees. In poor markets, harvesters pay lower fees. The Crown's stumpage fees have four components:

- A minimum charge per cubic metre of harvested timber, regardless of the species, goes to the Consolidated Revenue Fund of the province. This charge is adjusted annually. Table 2e shows the minimum charge for the last five years;
- A forest renewal levy to provide dedicated funding for forest renewal. This charge varies depending upon the tree species and its anticipated renewal cost. Forest renewal charges are held in either a Forest Renewal Trust Fund or a Forest Renewal Special Purpose Account and can only be used for regenerating and maintaining the health of Ontario's forests;
- A residual value charge, paid to the province's Consolidated Revenue Fund. This charge varies from zero in times of low forest product prices, to about $23 per cubic metre when product prices are high, depending on species and product sector; and
- A Forestry Futures Trust charge is also applied; this charge is $0.48 per cubic metre of timber harvested. The Forestry Futures Trust is overseen by the

Forestry Futures Trust Committee, an independent committee appointed by the Minister of Natural Resources. It funds projects that meet MNR-approved criteria. To qualify, projects must be: a silvicultural activity on Crown land that addresses renewal of trees killed or damaged by fire; renewal of land where a licensee becomes insolvent; forest protection from insect or disease infestation; intensive stand management related to a critical wood supply; or, expenditures for Independent Forest Audits, Forest Resource Inventories, or conversion charges. Conversion charges are used to assist with costs associated with the establishment of an SFL.

Summary of Ontario's Stumpage System - 2008/09

- The minimum stumpage charge ranged from $0.59 to $3.92 per cubic metre (table 2e);
- In the 2008/09, the MNR redirected $1.04 per cubic metre from the minimum charge into the Forestry Futures Trust to raise a minimum of $10 million which was used to fund Forest Resource Inventory work. Once the $10 million was raised the $1.04 was added back to the minimum rate making it $3.92 per cubic metre; and
- Table 2f lists the payments by the forest industry to the various government accounts.

Table 2e - Minimum stumpage charge per cubic metre

Fiscal Year	Minimum Charge
2004/05	$3.60
2005/06 [1]	$1.36
2006/07	$3.34
2007/08[2]	$0.59 - $3.80
2008/09	$0.59 - $3.92

[1] In 2005, a retroactive stumpage adjustment in the amount of $70,000,000 was made for all wood invoiced in 2005/2006 fiscal year. This adjustment accounts for the lower minimum charge value for wood harvested during the 2005/2006 period.

[2] In 2007/08 the MNR reduced the minimum charge to $0.59 for certain unutilized species in an effort to increase their harvest levels and use as a fibre source.

Table 2f - Crown charge payments by the forest industry

Year	Forestry Futures Trust	Consolidated Revenue Fund	Forest Renewal Trust	Forest Renewal SPA	Total Payments
2004/05	$11,726,196	$113,707,893	$84,379,204	$140,943	$209,954,236
2005/06	$12,723,888	$32,974,166	$44,682,680	$1,092,661	$91,473,395
2006/07	$13,432,025	$60,213,322	$57,754,954	$979,275	$132,379,576
2007/08	$21,832,131 [1]	$38,491,464	$69,317,150	$229,192	$129,869,937
2008/09	$18,138,678	$31,555,326	$46,208,910	$227,917	$96,130,831

[1] *Reflects revenue brought in for Forest Resource Inventory work*

Note: Funds in the Forest Renewal Trust, the Forest Renewal Special Purpose Account, and the Forestry Futures Trust are not formally counted as revenue by the province, although funds in the Forest Renewal Special Purpose Account are held in the province's Consolidated Revenue Fund.

Forest Sector Competitiveness Secretariat

In response to recommendations received from the May 2005 report from the Minister's Council on Forest Sector Competitiveness, the Ministry of Natural Resources (MNR), through the Forest Sector Competitiveness Secretariat (FSCS), implemented new programs with the goal of addressing the challenges faced by the Ontario forest sector. These programs aim to provide a positive climate for investment and strengthen the industry's future through joint industry and government actions.

Loan Guarantee Program (LGP)

Announced in June of 2005, the LGP has the capacity to provide a series of loan guarantees up to a maximum of $350 million over five years. The loan guarantees will be issued to the forest industry's lenders to support and leverage new capital investment projects in:

- new value-added manufacturing;
- increased fibre use efficiencies;
- energy conservation/efficiency (where this is a primary purpose); and
- development of co-generation.

The Forest Sector Prosperity Fund (FSPF)

This program announced in September 2005 is providing a total of $150 million in conditional grants to the forest sector over three years. The funding grants will be issued to the forest industry to support and leverage new capital investment in projects similar to those identified under the LGP but also including:

- load management and electricity generation from biomass;
- advanced materials handling/efficiencies;
- new environmental technologies;
- associated infrastructure needs (such as hydro lines, rail lines, etc.); and
- worker training for transition to forest sector skill sets.

Summary of FSPF and LGP - 2008/09

- Nine offers for FSPF and LGP support were accepted;
- $13.1 million was provided in FSPF grants; and
- $63.9 million in loan guarantees were approved.

Ontario Wood Promotions Program (OWPP)

The Ontario Wood Promotions Program is a $1 million a year program that supports the development of capacity and markets for the value-added forest product industry in Ontario.

Summary of Ontario Wood Promotions Program - 2008/09

OWPP met its goals for 2008/09 by strategically investing in a range of measures:

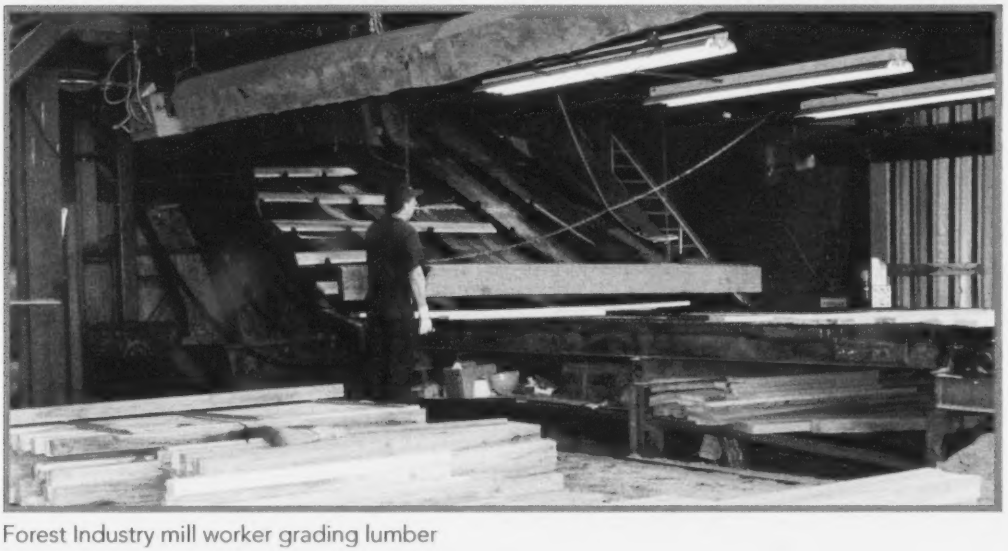
- The program was able to assist four Research and Training facilities in the expansion and enhancement of their programs to train the next generation of wood workers. In addition, a student wood design competition to excite and entice students to enter the field was funded;
- The program supported three organizations in their efforts to further the value-added wood industry; Northern Ontario Value-Added initiative (NOVA) which promotes and assists entrepreneurs in their efforts to identify and establish new value-added opportunities; the Ontario Wood Products Export Association which provides market intelligence and represents its value-added members on the national and international stage; and the Canadian

Wood Council's WoodWORKS! initiative which promotes the use of wood in construction to expand markets for value-added wood products; and

- Funds were provided for two studies; a commercial pellet study and a southern biomass initiative.

Northern Pulp and Paper Electricity Transition Program

To assist forest sector companies who have been hit hard by rising electricity costs, the $140 million Northern Pulp and Paper Electricity Transition Program was announced in November 2006. This three -year program offers electricity rate relief to pulp and/or paper companies in Northern Ontario that use over 50,000 megawatt hours per year. Participating companies must prepare and implement an electricity transition plan designed to decrease electricity costs by a minimum 15% per unit of production within the three -year term of the program thereby improving the mill's long-term cost competitiveness and viability.



Forest Industry mill worker grading lumber

Summary of the Northern Pulp and Paper Electricity Transition Program - 2008/09

- During 2008/09, over $26 million in electricity rate relief was provided to mills participating in this program.

Provincial Wood Supply Competitive Process

In January 2009, the Ministry of Natural Resources initiated the staged competition for Crown wood supply in Ontario for the use of Crown forest resources. The primary purpose of the staged competition is to support new investment in Ontario through wood supply that would be used to create job opportunities in the value-added forest products sector and emerging bio-economy, while continuing to support a strong primary manufacturing forest sector in Ontario. The first stage of the competition was a Request for Expressions of Interest (RFEI), which was issued on January 20th, 2009 and ended March 3rd, 2009. This first stage provided an open invitation for submissions to assist the Minister with determining whether or not to move forward with the provincial wood supply competitive process. There were 131 submissions in response to the RFEI looking for five times the wood supply that was considered available. Based on the information provided in the submissions received in response to the RFEI, among other things, the Ministry determined that stage two of the staged competition was warranted and will occur in 2009/10.

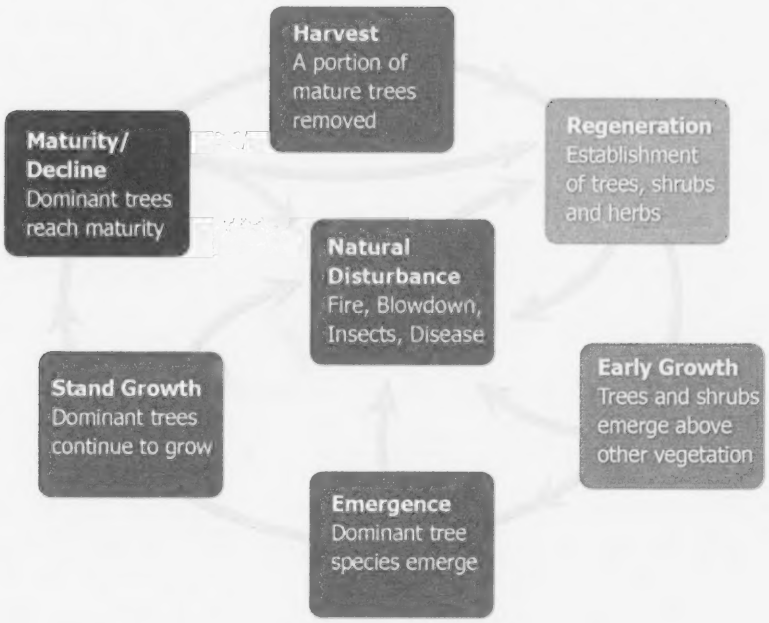
Overview of Natural Disturbances in Ontario's Forests

Natural disturbances such as forest fires, insects, diseases, and severe weather events occur throughout the life cycle of the forest, as illustrated in Figure 3a. Natural disturbances (except for diseases) are measured both by area (hectares) and volume (cubic metres) of trees killed or damaged. Losses to tree diseases are estimated by calculating an annual average volume loss for all chronic diseases. Area affected is not recorded for chronic diseases. Estimates of area affected and wood volumes lost due to insects, disease, and severe weather are based on studies completed by the forest health monitoring partnership between the Canadian Forest Service and the MNR.

All estimates of disturbance area, both for the province and for the Area of the Undertaking (AOU), encompass all forest lands including Crown forests, federal and private forest lands, and federal and provincial parks. Estimates for AOU disturbance volume, however, are based on Crown production forest lands only. Depending on the severity of damage to trees from these disturbances, it is often possible to conduct salvage operations in disturbed areas to harvest timber and reduce economic losses and the threat of forest fires. These operations are reported as harvesting, and discussed in Chapter 4.

Forest inventory descriptions are changed when stands are impacted by disturbance. However, the degree of disturbance impact required before the inventory description is changed is a subjective decision. The most significant disturbances are reported in the fall of the year following a disturbance.

Figure 3a - The forest life cycle



Forest Fires

The MNR records the area and volume disturbed by forest fires across all the forested area of Ontario. The number and size of forest fires varies dramatically year to year, depending on the weather. This variability is illustrated in Figure 3b, where the last five years of provincial fire disturbance is shown (as well as the average from the previous ten year period).

Severe Weather

Windstorm damage (commonly referred to as "blowdown"), drought, and cold weather damage (ice/snow/ severe cold) are the most common weather related occurrences causing significant tree mortality and volume losses. Windstorms of various intensities occur periodically throughout the province. Damage from these storms is only recorded if it is discovered and if it is of a significant magnitude.

Blowdown damage

Insect Damage

The damaged area and volume loss caused by the most destructive insects are based on estimates of forested areas where 30 percent or more of the foliage was removed. Usually, a number of years of repeated defoliation are required to kill a tree. This varies for each pest, the tree species being attacked, and other factors. Forested areas may be defoliated by more than one insect. Areas reported as defoliated may include different degrees of severity. The total area and volume loss due to mortality caused by insects for the last five years is presented in Table 3a. Growth loss due to insects is reported in Table 3b.

Jack pine budworm damage

Diseases

The annual changes in area and volume in a forest stand that result from natural, disease-induced mortality are not usually significant enough to be recorded for inventory update purposes. For example, chronic diseases such as root rot may kill only a few trees scattered throughout a forest stand. Therefore no area loss is recorded for most diseases. However an estimate of the volume of wood in the dead trees, and the volume of growth loss in the remaining live trees is made annually. Volume estimates of the effects of chronic disease are derived from estimates of growth and mortality losses caused by rot, stem decay, and foliage dieback. These estimated losses to disease for the last five years have been relatively stable, at somewhat less than 10 million cubic metres lost annually (Table 3c). Most of the estimated losses are in the form of tree mortality.

Calculating Volume Losses

There are two main groups of natural forest disturbances measured in Ontario, abiotic and biotic. Abiotic disturbances are those caused by non-living factors, including wildfire, drought, and severe weather such as wind, snow or hail. Biotic disturbances are those caused by living factors such as insects (forest tent caterpillars, gypsy moths, spruce budworm), or diseases (hypoxylon, root rot, or Stillwell syndrome).

Many of the insects and diseases that occur in Ontario's forests do not actually kill the trees they infest, but simply reduce the amount of growth that occurs in a spring/summer season. For example, a forest tent caterpillar infestation can reduce aspen growth by 75% in a season, and white birch by 40%. This growth loss is recorded as current annual increment volume (CAI). Many years of repeated defoliation can eventually lead to tree mortality, and this is recorded differently, as gross total volume (GTV) of wood lost.

Most abiotic disturbances like fire or blowdown cause major forest damage, and usually end up with significant tree mortality within the area of the disturbance. Each disturbance type is studied and growth loss or mortality factors are developed based on these field samples. Chronic tree diseases such as hypoxylon or root rot are not measured in area, as they are assumed to occur in most forested stands to some extent, so estimates by tree species and age are calculated for the entire AOU, and reported for Crown forests.

Summary of Natural Disturbance - 2008/09

- Forest fire activity was significantly lower in 2008/09 compared 2007/08; there were 330 fires across the province, totaling only 128 ha (Figure 3b). Most of the fires that occurred were under 1 ha in size;
- For the fourth consecutive year, jack pine budworm continued to infest large areas of the Northwest Region, between Kenora and Red Lake. Spruce budworm defoliation occurred mainly in the Northeast Region between Sudbury, North Bay and New Liskard. Crown forest area disturbed and volume lost to forest insects was lower in comparison to 2007/08 (Figures 3c and 3d);
- Detailed summaries of major forest disturbances in 2008/09 are available on-line at: http://ontario.ca/forests

Figure 3b – Area disturbed by forest fire

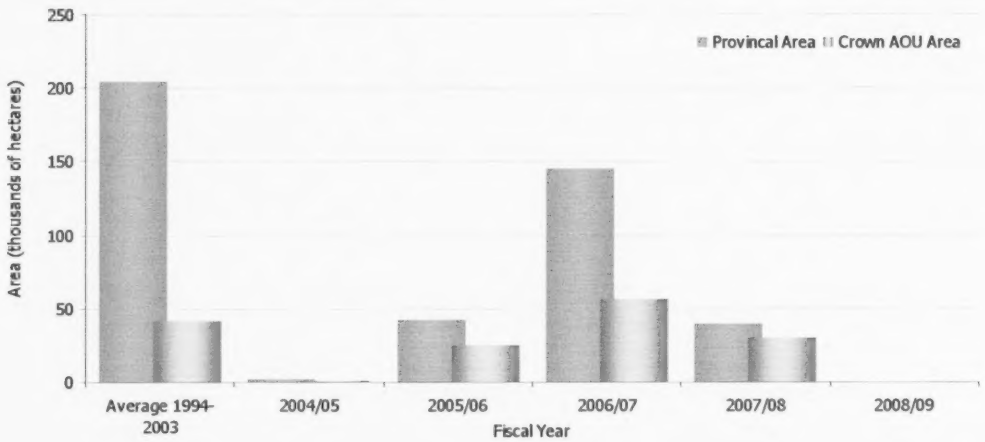


Figure 3c - Estimated area disturbed by forest insects

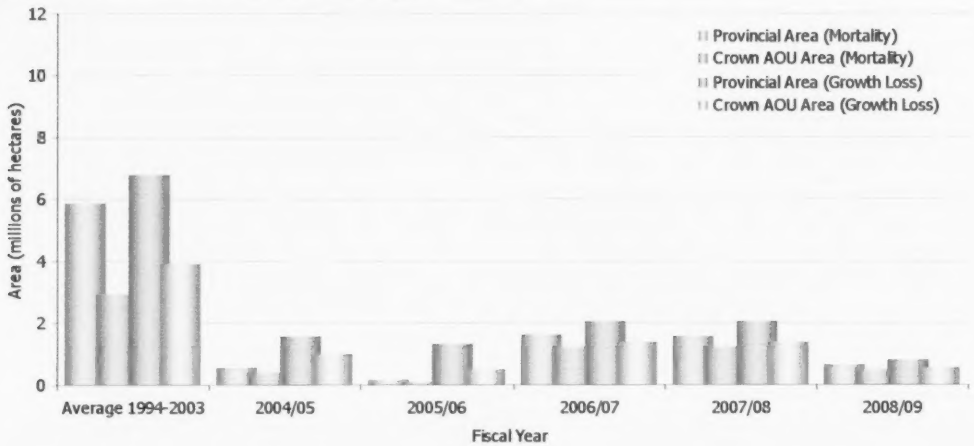


Table 3a - Estimated wood volume and area lost through natural disturbances: mortality

Area in hectares, mortality volume in cubic metres, gross total volume (GTV)

Natural Disturbance Type	Area and Volume Loss - Mortality					
	Average 1994-2003	2004/05	2005/06	2006/07	2007/08	2008/09
Abiotic						
Fire						
Provincal Area	204,713	1,799	42,775	144,731	39,089	128
Crown AOU Area	41,250	640	25,165	55,702	30,279	128
Crown AOU Volume	4,278,659	5,974	3,767,975	5,849,552	3,214,957	-
Blowdown						
Provincal Area	18,426	107	512,803	55,731	17,924	4,315
Crown AOU Area	8,694	69	412,147	41,306	15,844	1,072
Crown AOU Volume	1,364,886	-	25,068,527	4,747,905	1,385,994	-
Weather Damage						
Provincal Area	385,563	173,015	-	-	936	509
Crown AOU Area	260,254	152,700	-	-	200	438
Crown AOU Volume	1,075,271	962,082	-	-	1,061	2,749
Drought						
Provincal Area	153,342	-	65,798	7,071	33,315	-
Crown AOU Area	87,772	-	13,252	6,028	1,760	-
Crown AOU Volume	980,659	-	92,178	28,047	3,869	-
Biotic - Forest Insects						
Spruce Budworm						
Provincal Area	5,767,621	13,848	17,112	817,434	849,052	450,387
Crown AOU Area	2,908,592	5,820	6,866	555,548	658,523	330,734
Crown AOU Volume	5,094,373	3,949	4,482	235,411	242,463	130,055
Jack Pine Budworm						
Provincal Area	43,456	856	98,306	791,888	687,715	138,103
Crown AOU Area	27,588	23	92,225	677,527	558,258	119,372
Crown AOU Volume	4,721	246	41,974	259,827	201,518	48,992
Gypsy Moth						
Provincal Area	26,269	177	1,280	10,475	33,056	40,745
Crown AOU Area	7,851	1	-	1	-	9,953
Crown AOU Volume	5,058	-	-	-	38	5,444
Poplar/Birch Complex						
Provincal Area	-	512,216	1,862	-	-	-
Crown AOU Area	-	383,555	1,811	-	-	-
Crown AOU Volume	-	1,780,027	9,130	-	-	-
Other Insects						
Provincal Area	178	5,039	4,803	5,984	1,977	8,146
Crown AOU Area	34	520	529	2,544	1,686	6,335
Crown AOU Volume	-	2,560	2,310	129,532	82,619	17,690
Total - Biotic and Abiotic - Area and Volume Loss - Mortality						
Provincal Area	**6,599,569**	**707,057**	**744,739**	**1,833,314**	**1,663,064**	**642,332**
Crown AOU Area	**3,342,035**	**543,328**	**551,996**	**1,338,656**	**1,266,551**	**467,903**
Crown AOU Volume	**12,803,626**	**2,754,837**	**28,986,575**	**11,250,274**	**5,132,518**	**204,930**

Table 3b - Estimated wood volume and area lost through natural disturbances: growth loss

Area in hectares, mortality volume in cubic metres (GTV), current annual increment (CAI)

Natural Disturbance Type	Area and Volume Loss - Growth Loss					
	Average 1994-2003	2004/05	2005/06	2006/07	2007/08	2008/09
Abiotic						
Weather Damage						
Provincal Area	84,745	173,015	594,462	-	376,715	509
Crown AOU Area	37,110	152,700	437,776	-	267,768	438
Crown AOU Volume	4,719	-	-	-	-	-
Drought						
Provincal Area	1,287,697	-	65,798	7,071	33,315	-
Crown AOU Area	674,808	-	13,252	6,028	1,760	-
Crown AOU Volume	152,609	-	7,883	1,671	503	-
Biotic - Forest Insects						
Spruce Budworm						
Provincal Area	715,432	279,448	337,245	817,434	849,052	450,387
Crown AOU Area	382,272	156,943	205,974	555,548	658,523	330,734
Crown AOU Volume	178,510	10,422	12,991	31,392	39,148	19,555
Jack Pine Budworm						
Provincal Area	144,727	856	98,306	791,888	687,715	138,103
Crown AOU Area	82,327	23	92,225	677,527	558,258	119,372
Crown AOU Volume	15,415	40	5,948	52,816	47,325	22,010
Forest Tent Caterpillar						
Provincal Area	4,232,550	1,272,413	469,795	370,772	371,512	42,895
Crown AOU Area	2,501,448	829,959	183,540	126,767	125,330	23,566
Crown AOU Volume	877,463	272,905	53,234	41,237	40,994	9,209
Gypsy Moth						
Provincal Area	26,269	177	1,280	10,475	33,056	40,745
Crown AOU Area	7,851	1	-	1	-	9,953
Crown AOU Volume	112	-	-	-	4	1,202
Poplar/Birch Complex						
Provincal Area	1,622,431	7,814	15,236	30,374	84,588	98,431
Crown AOU Area	936,568	4,250	8,505	21,274	44,202	70,983
Crown AOU Volume	160,072	415	9,055	17,265	11,242	12,584
Other Insects						
Provincal Area	23,532	12,174	409,741	22,668	46,776	4,895
Crown AOU Area	885	2,173	15,851	-	65	1,412
Crown AOU Volume	28	2	-	-	-	-
Total - Biotic and Abiotic - Area and Volume Loss - Growth Loss						
Provincal Area	**8,137,383**	**1,745,896**	**1,991,863**	**2,050,683**	**2,482,728**	**775,965**
Crown AOU Area	**4,623,270**	**1,146,048**	**957,124**	**1,387,145**	**1,655,906**	**556,457**
Crown AOU Volume	**1,388,930**	**283,784**	**89,111**	**144,381**	**139,215**	**64,560**

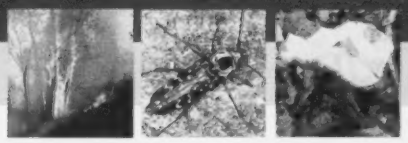


Table 3c - Estimated wood volume lost to diseases: mortality and growth loss

Area in hectares, mortality volume in cubic metres (GTV), growth loss in cubic metres (CAI)

Mortality and Growth Loss Disease Type	Average 1994-2003	Crown AOU Volume loss 2004/05	2005/06	2006/07	2007/08	2008/09
Diseases - Mortality						
Decay	4,854,155	4,870,389	4,774,892	4,867,600	4,872,468	4,988,434
Root Rot	3,999,272	3,159,060	3,097,117	3,141,138	3,144,279	2,940,405
Dieback	1,506,532	1,568,196	1,537,447	1,575,207	1,672,579	1,590,852
Other Diseases	171,153	6,258	-	12,008	-	-
Total	**10,531,112**	**9,603,903**	**9,409,456**	**9,595,952**	**9,689,325**	**9,519,692**
Diseases - Growth Loss						
Root Rot	264,007	222,064	217,710	214,409	214,624	213,842
Hypoxylon	2,002,102	1,702,945	1,702,247	1,695,372	1,696,067	1,957,058
Aspen Decline	44,788	76,838	-	-	-	92
Total	**2,310,897**	**2,001,847**	**1,919,957**	**1,909,781**	**1,910,691**	**2,170,992**

Figure 3d - Estimated Crown AOU volume lost to forest insects

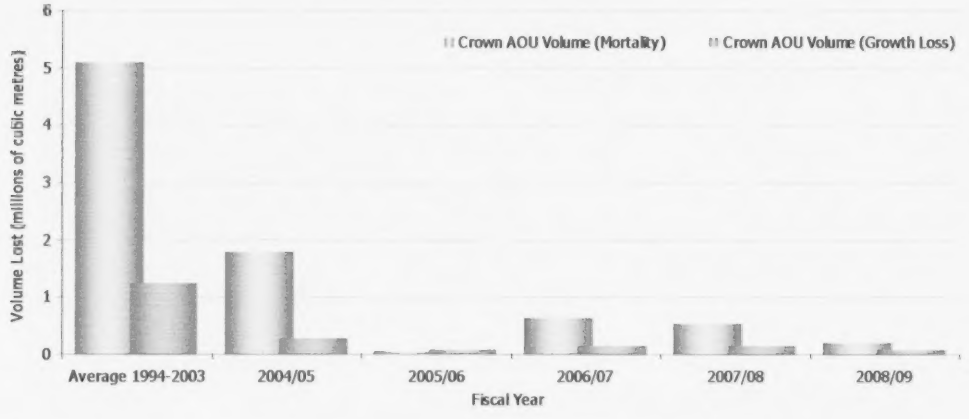
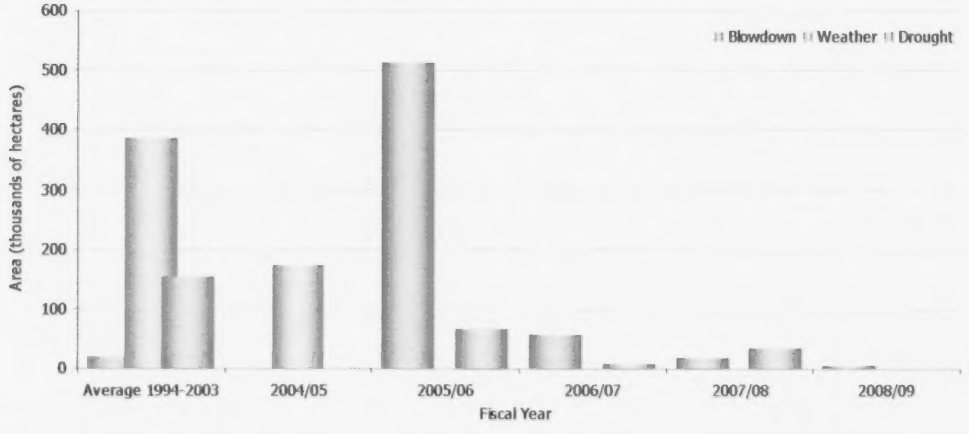


Figure 3e - Area affected by severe weather



Overview of Forest Harvesting Activities

This chapter reports on the level of forest harvesting activities in Ontario. Forest managers are required to report the area and volume harvested on Ontario's Crown forests each year. Harvesting that takes place on private land is not reported.

Ontario's forests are harvested in a sustainable manner; harvesting in each forest management unit is regulated and monitored according to an approved Forest Management Plan (FMP). The MNR requires that the allowable harvest for a management unit be set at a level that will sustain a healthy forest over time. The FMP specifies both the allowable harvest area and the associated harvest volumes. However, in Ontario the regulation of allowable harvest is based on area, not volume.

The majority of harvesting activities on Ontario's Crown forest takes place in the Boreal and the Great Lakes-St. Lawrence Forest Regions, within the Area of the Undertaking.

Silviculture Systems Used in Ontario

Harvesting in Ontario is one of a series of actions that when combined with forest renewal and maintenance activities (e.g., tending, protection), represent a silviculture system. These systems are classified according to the method of harvesting. Ontario uses three silviculture systems: selection, shelterwood, and clearcut. The different silviculture systems are used to optimize the regeneration of the forest. The silviculture system chosen is based on the characteristics of the current forest stand as well as the desired future forest condition.

Selection Silviculture System

In the selection system, mature, unhealthy or undesirable trees in a forested stand are individually harvested (or in small groups) on a cutting cycle that ranges from 10 to 40 years. This method produces stands with trees of different ages, and is referred to as uneven-aged management. The selection silviculture system is mainly used in stands of shade tolerant hardwoods (e.g., maple, oak, and beech). The trees left behind provide the necessary shade for the regenerating forest below. The selection silviculture system is mainly used in the Great Lakes-St. Lawrence Forest Region.

Selection harvest

Shelterwood Silviculture System

In the shelterwood system, mature trees are harvested in a series of two or more cuts to encourage natural regeneration and growth under or next to the residual trees. This is done by cutting trees uniformly over the stand area or in groups or narrow strips. Stands with trees approximately the same age are produced with this system, and is referred to as even-aged management. The shelterwood system is used in both the Boreal and Great Lakes-St. Lawrence Forest Regions and is mainly applied to forest stands of white and red pine as well as tolerant hardwoods.

Shelterwood harvest in a white and red pine forest

Clearcut Silviculture System

Forest harvesting under the clearcut system is usually completed in one operation. Individual trees within the harvest area and/or parts of forest stands are retained for silvicultural reasons (e.g., seed trees) or to provide protection for forest values (e.g., marten habitat and cavity dwelling birds). Regeneration methods used can be natural, assisted (e.g., planting or seeding) or a combination of both methods.

Clearcut harvest in a black spruce and jack pine forest

This method is also an even-aged system, with the majority of the regenerating trees being the same age. The clearcut system is mainly used in areas where tree species (e.g., jack pine, black and white spruce, poplar and white birch) are adapted to regenerating after natural disturbances, such as wildfires. Currently, in Ontario, clearcut practices are designed to emulate these natural disturbances.

Natural Disturbance Pattern Emulation

With the publication of the *Forest Management Guide for Natural Disturbance Pattern Emulation* (NDPE guide) in 2001, Ontario has been changing its forest practices so that forest biodiversity and natural processes are more proactively maintained. This is accomplished in part by emulating as closely as possible the landscape patterns produced by forest fires (e.g., variation in size and shape). This pattern of harvesting is generally referred to as Natural Disturbance Pattern Emulation and is most notably being implemented as part of the clearcut silviculture system in the Boreal forest.

NDPE Guide harvest block

While forest harvesting cannot precisely duplicate natural disturbances in the forest, the NDPE guide promotes timber harvesting practices that emulate the natural range and pattern of fire disturbances (both small and large). This variation in harvest pattern creates desirable habitat for various wildlife species. Smaller disturbances favour the creation of habitat for species such as moose, black bear and ruffed grouse, because this size of disturbance creates a lot of "edge" (where different forest types, features, or age classes come together). Larger disturbances, over time, create habitat for species which prefer large,

uniform forests, such as the American marten, the woodland caribou, and the great grey owl. Wildlife species have evolved in forest patterns that have largely been shaped by wildfire. Therefore the widest possible range of wildlife species will benefit by emulating the broadest range of natural disturbance patterns.

The NDPE guide also includes a standard that calls for 80% of the number of planned clearcuts in the Boreal Forest Region, and 90% of the number of planned clearcuts in the Great Lakes-St. Lawrence Forest Region, to be less than 260 hectares in size. In addition the guide gives direction on measuring the size of contiguous clearcuts, including requirements for temporal and spatial separation. Generally, an adjacent clearcut is considered contiguous if there is less than 200 metres of forested area separating it from the next clearcut. Also, if an adjacent clearcut is over 3 metres tall or 20 years old it is not considered part of the clearcut. When planned clearcuts exceed 260 hectares, each clearcut larger than 260 hectares is to be recorded in the FMP with an accompanying silvicultural or biological rationale.

Summary of Clearcut Size – 2008/09

Management unit annual reports were analyzed to measure size and frequency parameters for areas cut under the clearcut silviculture system in 2008/09:

Boreal Forest Region

- In 2008/09, there were a total of 1,044 active clearcut harvest areas in the Boreal Forest Region. Of these clearcuts, 986 (94%) were less than 260 hectares in size. The average clearcut size was 79 hectares and the maximum clearcut was 1,300 hectares.

Great Lakes-St. Lawrence Forest Region

- In 2008/09, there were a total of 670 active clearcut harvest areas in the Great Lakes-St. Lawrence Forest Region. Of these clearcuts, 657 (98%) were less than 260 hectares in size. The average clearcut size was 46 hectares and the maximum clearcut was 726 hectares.

Management Unit Annual Reports are now available online at MNRs electronic Forest Management Planning Website (http://ontario.ca/forestplans). Additional details regarding clearcut size under the clearcut silvicultural system can be observed in these reports.

Summary of Harvest Area – 2008/09

- Total area harvested on Crown land was 123,387 hectares, most of which was harvested under the clearcut silvicultural system (Figure 4a and 4b). Market conditions in the forest industry have contributed to a significant drop in the area harvested over the last 3 years;
- Area disturbed by natural causes in 2008/09 has decreased significantly from the previous 2 years (Figure 4c);
- There were 2,930 hectares of naturally disturbed area salvaged in 2008/09; and
- All forest management plans in effect for 2008/09 were required to fully implement the NDPE guide 2001 for even-aged managed stands.

Figure 4a – Area harvested by silviculture system

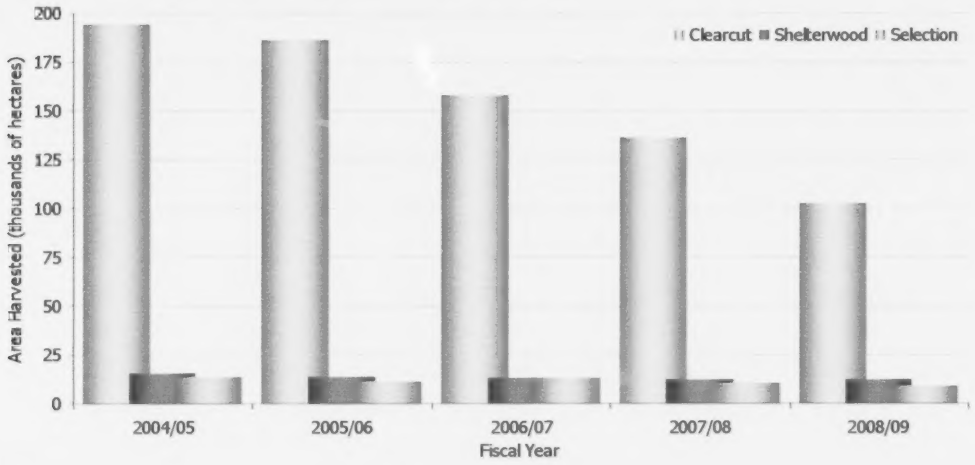


Figure 4b - Area harvested by year and MNR region

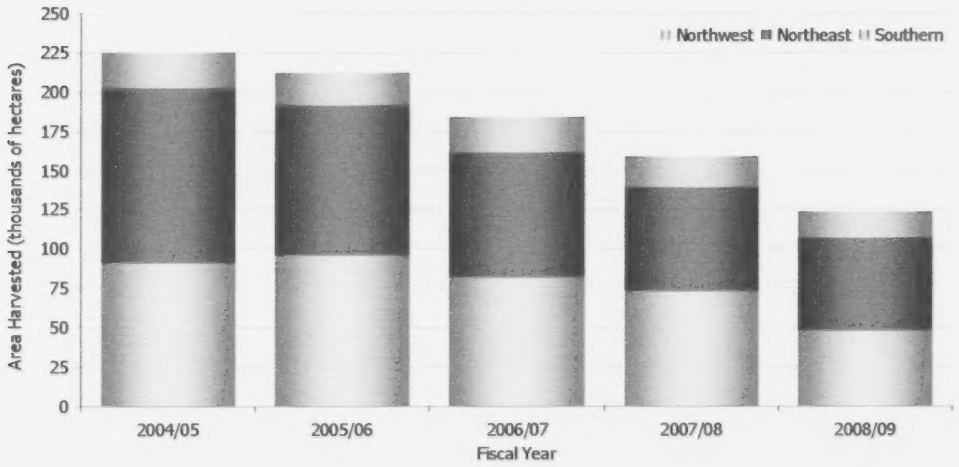
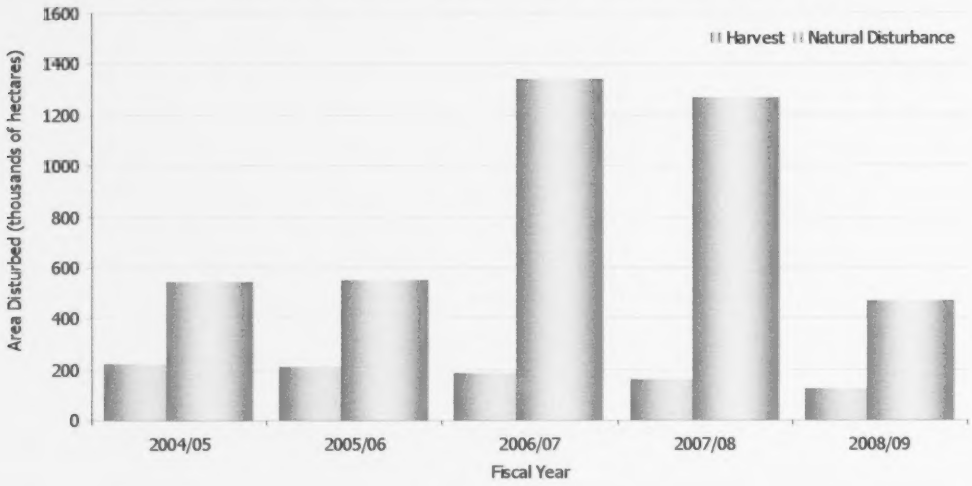


Figure 4c - Area disturbed by harvest and natural causes within the AOU



Summary of Harvest Volume - 2008/09

- Harvest volumes reported have dropped significantly over the last 3 years (Figure 4d and Table 4a); this is due to the overall reduced area being harvested as a result of the downturn in the forest industry;
- 12.4 million cubic metres of wood was harvested on Crown land with the majority being softwood (conifer) volume from the Northwest and Northeast Regions (Figure 4e and 4f);
- The total volume harvested is slightly greater than the total mortality volume (9.72 million) caused by insect, disease, severe weather and fire combined (Figure 4f); and

Figure 4d - Softwood and hardwood volumes harvested on Crown land

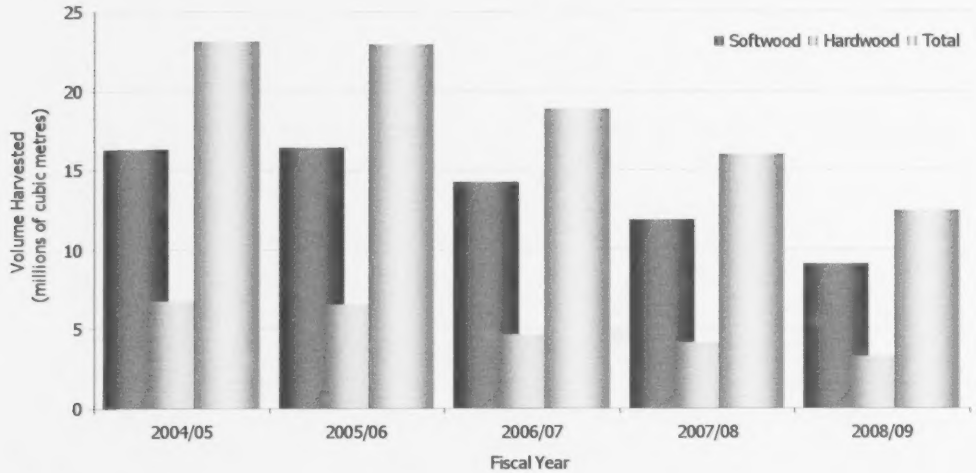


Figure 4e - Softwood and hardwood volumes harvested by MNR Region - 2008/09

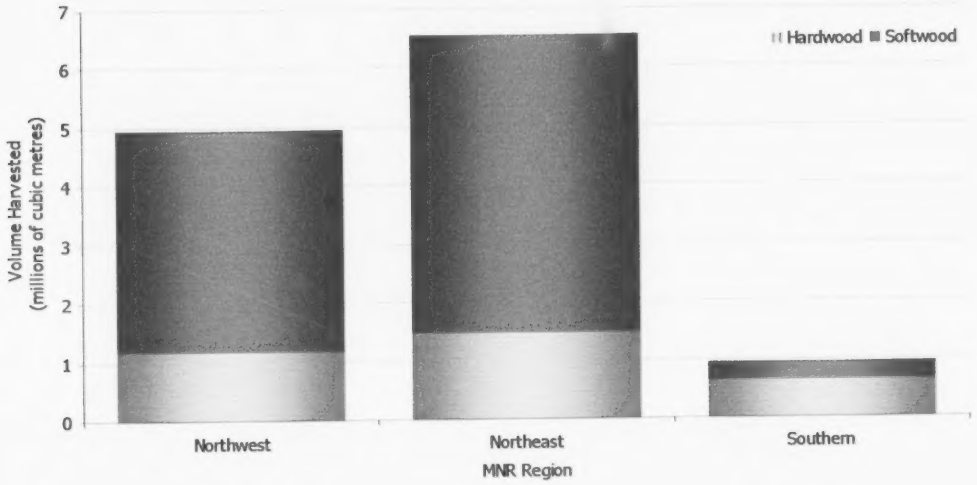


Figure 4f - Wood volumes from harvest and natural disturbances

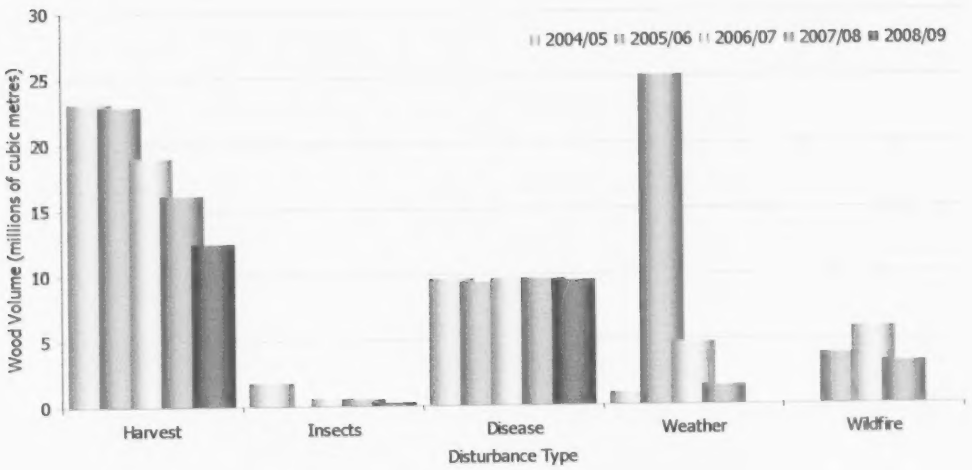


Table 4a - Harvest volume by species (cubic metres)

Softwood Species	2004/05	2005/06	2006/07	2007/08	2008/09
White Pine	613,956	474,235	575,258	384,925	364,605
Red Pine	258,927	225,136	252,351	178,322	193,278
Jack Pine	5,055,635	5,427,202	4,652,088	4,180,294	3,151,418
Spruce	9,816,420	9,597,609	8,190,219	6,471,432	4,771,706
Hemlock	29,125	25,456	33,720	26,578	25,944
Balsam Fir	484,250	536,170	418,950	443,726	350,770
Cedar	43,049	65,759	12,860	30,336	13,474
Larch	39,292	58,617	21,150	38,731	21,021
Other Softwood	4,263	14,693	36,565	143,157	246,456
Total Softwoods	**16,344,916**	**16,424,876**	**14,193,162**	**11,897,499**	**9,138,673**

Hardwood Species	2004/05	2005/06	2006/07	2007/08	2008/09
Maple	657,331	664,641	699,730	620,966	564,366
Yellow Birch	64,646	64,581	51,462	42,718	41,949
White Birch	686,412	823,274	544,439	550,010	396,540
Oak	39,918	45,412	37,655	36,845	32,242
Beech	43,788	47,765	49,577	42,688	28,837
Poplar	5,217,928	4,802,725	3,271,073	2,760,656	2,086,690
Basswood	12,786	15,194	13,451	14,451	8,436
Ash	5,099	6,295	7,211	5,865	5,266
Other Hardwood	3,638	3,634	5,776	79,474	110,702
Total Hardwoods	**6,731,544**	**6,473,520**	**4,680,374**	**4,153,674**	**3,275,026**
All Species Total	**23,076,460**	**22,898,396**	**18,873,536**	**16,051,174**	**12,413,699**

Overview of Forest Renewal and Tending Activities

The Crown Forest Sustainability Act (CFSA) requires forest managers to carry out renewal activities on harvested areas to provide for the sustainability of Crown forests. Forest maintenance operations are also required and conducted on Ontario's Crown forests. These operations include tending carried out to improve the survival, growth, or quality of a regenerating forest, and protection operations carried out to manage or prevent the damage caused by forest insects and diseases.

Forest renewal follows disturbance in the life cycle of a forest. Whether a forest is disturbed by natural means (e.g., fire, insect, severe weather event) or through harvest activities, a new forest begins to develop almost immediately following the disturbance event. Forest renewal may occur through natural means or through various methods of assisting the renewal process (planting or seeding). Forest renewal includes a variety of activities that can take place in various combinations. Activities needed to ensure the successful regeneration of all harvested areas are specified in all approved FMPs in Ontario. The activities undertaken for the purposes of forest renewal are reported annually.

Planting and seeding are the two most common types of assisted regeneration. Seeding may be carried out directly from aircraft or by seeders on the ground. The regeneration establishment period, from harvest to completion of the planting or seeding can take up to five years.

Many tree species can re-establish themselves on a site without planting or seeding. These natural regeneration processes could include seeding from the adjacent forest or from cones left on site after the harvest (jack pine), suckering of stumps and roots (poplar), and continued growth of young trees remaining on the harvested area (black spruce).

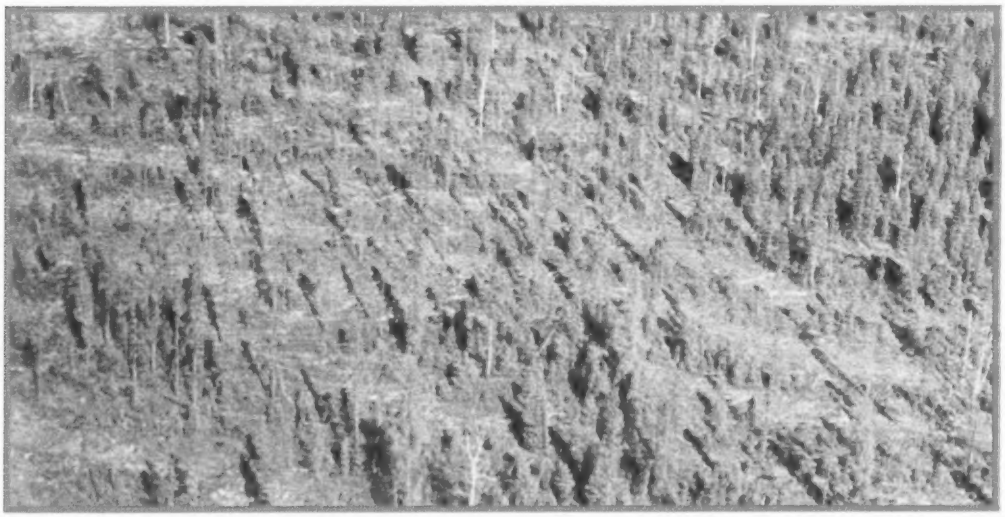
This natural regeneration can be enhanced through careful selection of the silvicultural system and harvest method.

The choice of silvicultural system or harvest method used is largely dependent on the biological requirements of the different tree species. The silvicultural systems used in Ontario are described in more detail in chapter 4 of this report.

The clearcut silvicultural system is the primary system used in the Boreal forest of the Northeast and Northwest regions, mainly in stands containing jack pine, black spruce, poplar and white birch. Natural regeneration using the clearcut silvicultural system can be broken down into several categories (Table 5a - Block cut, HARP/HARO, CLAAG, Strip cut and Seed Tree Cut).

A block cut is the removal of the stands in a single pass or one operation and leaving the renewal of the area to natural means.

CLAAG (careful logging around advanced regeneration) is an operational practice that can be applied with any harvest method under the clearcut silvicultural system. The objective for this method is to remove the overstory and retain or protect the understorey to facilitate natural regeneration.



CLAAG harvest in a black spruce forest

HARP or HARO (harvest and regeneration program/option) is an operational practice that occurs in uneven-aged lowland black spruce ecosystems. The objective of this method is to remove the dominant canopy and retain trees below a set diameter limit; this will leave a significant component of the overstorey intact for natural regeneration of the future stand.

A strip cut involves the removal of the stand in progressive strips or blocks in more than one operation. The strip cut method is prescribed to encourage natural regeneration, provide wildlife habitat, protect fragile sites or for aesthetic reasons.

A seed tree cut involves the removal of all commercial trees from an area, except for a small number of seed bearing trees left singly or in small groups for regeneration purposes. The seed tree method is used primarily in white pine and red pine stands in the Northwest and Northeast regions.

Natural regeneration using the shelterwood silvicultural system occurs mainly in white pine and tolerant hardwood stands in the Northeast and Southern regions.

Natural regeneration under the uneven-aged selection silvicultural system is carried out in tolerant hardwood stands mainly found in the Great Lakes - St. Lawrence forest region. In cases where planned natural regeneration is not successful, forest managers may apply assisted regeneration methods (e.g., planting or seeding).

Assisted regeneration efforts generally promote the renewal of a disturbed area by either seeding or planting. In an effort to increase the success of the regeneration effort, a site preparation treatment is often completed prior to the seeding or planting operation. Site preparation is done to provide suitable soil conditions that will promote seed germination and the subsequent development of a seedling, or will promote the establishment and development of a planted seedling. Site preparation can be accomplished through mechanical or chemical means, or by prescribed burning. Regeneration levels tend to follow fluctuations in harvest levels and, to a lesser degree, forest depletions from natural disturbances such as forest fires and insect epidemics.

Further treatments may be employed to assist the trees in the developing forest stand to get established. Those treatments are generally referred to as tending activities and include the operations of weeding, cleaning, thinning, spacing and stand improvement. Forest tending operations are carried out to improve the survival, growth, or quality of a regenerating

forest. Tending may be done in young stands to help achieve a successful result in establishing a desired forest or may be conducted in uneven-aged stands to maintain the desired age-class distribution and volume.

An assessment of regeneration success is also a requirement of the renewal process. The assessment refers to Free-To-Grow as an indication that the regeneration effort has been declared a success. Tables 5a, 5b and figures 5a through 5i, in this section provide a summary of provincial renewal operations conducted on forest management units across Ontario.

Regeneration Survey

Summary of Forest Renewal and Tending Activities - 2008/09

- The economic downturn in the forest industry has resulted in decreased harvest levels which in turn has led to a reduction in forest renewal levels such as planting, seeding, site preparation and chemical tending;
- Total regeneration efforts are slightly lower than the five - year average but the level of regeneration (natural and assisted) is consistent with the level of harvest;
- Most of the areas regenerated by natural or artificial methods were harvested using the clearcut silvicultural system;
- Natural regeneration efforts using the uniform shelterwood silviculture system remained at a consistent level of harvest;
- Assisted regeneration techniques using seeding have generally increased over the last five years (although areas seeded in 2008/09 were considerably less than 2007/08), while assisted regeneration techniques relying on planting have decreased relative to previous years;
- Tree planting continued to be the main method of assisted regeneration. Natural regeneration was the preferred option to renew areas affected by natural disturbances (e.g., fire, insect, weather events);
- Mechanical site preparation was below the five - year average for the third year in a row, with a substantial drop in 2008/09 in comparison to previous years. The decreasing level of mechanical site preparation gives an indication that planting and seeding effort in future years could decrease;
- There were no prescribed burns conducted for site preparation purposes; and
- Tending activities continued to decline for the third year in a row.

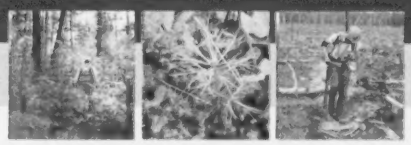


Table 5a - Provincial renewal operations

All units are area in hectares unless otherwise stated

Renewal Operation	2004/05	2005/06	2006/07	2007/08	2008/09	5 Year Average
Natural Regeneration						
Clearcut Silvicultural System						
Block Cut	56,682	107,073	73,911	63,649	58,125	71,888
HARP/HARO/CLAGG	748	14,823	14,288	11,611	13,355	10,965
Strip Cut	0	2	0	115	1	24
Seed Tree Cut	1,929	1,233	1,164	901	847	1,215
Shelterwood System	6,543	6,766	8,450	7,093	6,543	7,079
Selection System (uneven-age	8,276	11,715	12,323	10,040	8,830	10,237
Subtotal Natural Regeneration	74,178	141,613	110,135	93,408	87,700	101,407
Assisted Regeneration						
Planting	86,487	85,187	82,538	74,725	63,207	78,429
Trees (000's planted)	127,701	126,708	119,138	109,161	95,665	115,674
Seeding						
Direct	16,636	15,116	17,945	32,488	18,336	20,104
With Site Preparation	2,968	2,828	1,860	591	644	1,778
Scarification	113	108	224	88	32	113
Subtotal Assisted Regeneration	106,203	103,240	102,567	107,893	82,219	100,424
Total Regeneration	**180,381**	**244,852**	**212,703**	**201,301**	**169,919**	**201,831**
Site Preparation						
Mechanical	63,298	60,087	50,455	50,153	41,610	53,121
Chemical	6,874	10,943	9,131	6,841	5,274	7,813
Prescribed Burn		401		29		215
Total Site Preparation	**70,172**	**71,431**	**59,586**	**57,022**	**46,885**	**61,019**

Table 5b - Provincial tending operations

All units are in hectares

Tending Operation	2004/05	2005/06	2006/07	2007/08	2008/09	5 Year Average
Cleaning						
Manual	1,181	1,648	991	477	272	914
Chemical-ground	5,007	6,200	3,549	4,489	1,161	4,081
Chemical-aerial	57,604	71,762	66,301	61,217	52,418	61,860
Mechanical	0	0	0	0	0	0
Subtotal Cleaning	63,791	79,610	70,841	66,183	53,851	66,855
Spacing, Precommercial Thinning, Improvement Cutting						
Even-aged	11,851	10,567	5,145	4,175	2,951	6,938
Uneven-aged	5,592	8,610	8,735	7,352	3,059	6,670
Subtotal Spacing, Precommercial Thinning, Improvement Cutting	17,443	19,177	13,880	11,528	6,010	13,607
TOTAL TENDING	**81,235**	**98,786**	**84,721**	**77,711**	**59,861**	**80,463**

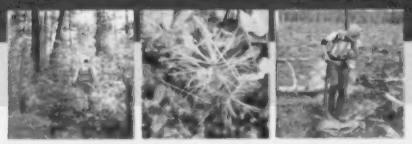


Figure 5a - Area of natural disturbance (fire and blowdown), harvest and regeneration (natural and assisted)

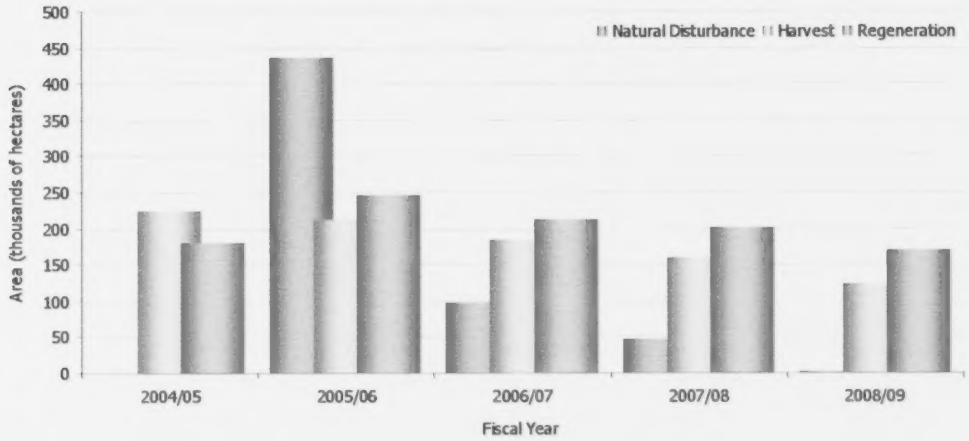


Figure 5b - Area of regeneration - clearcut silvicultural system

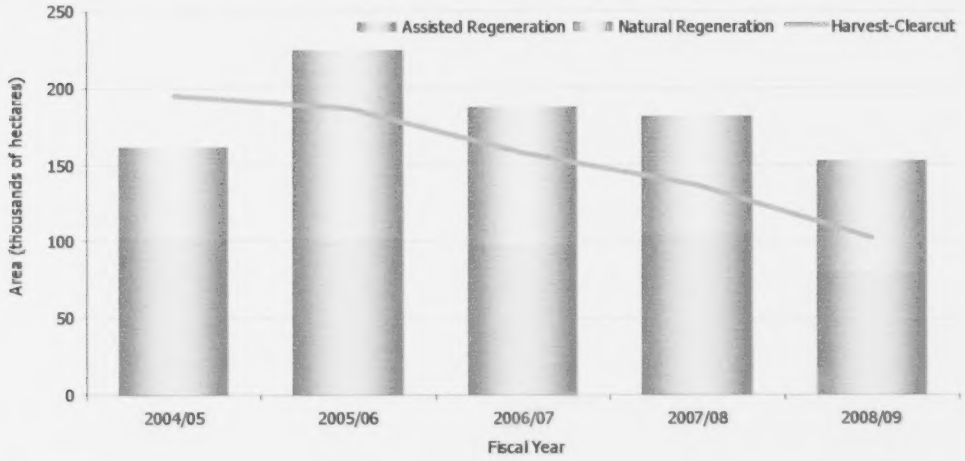
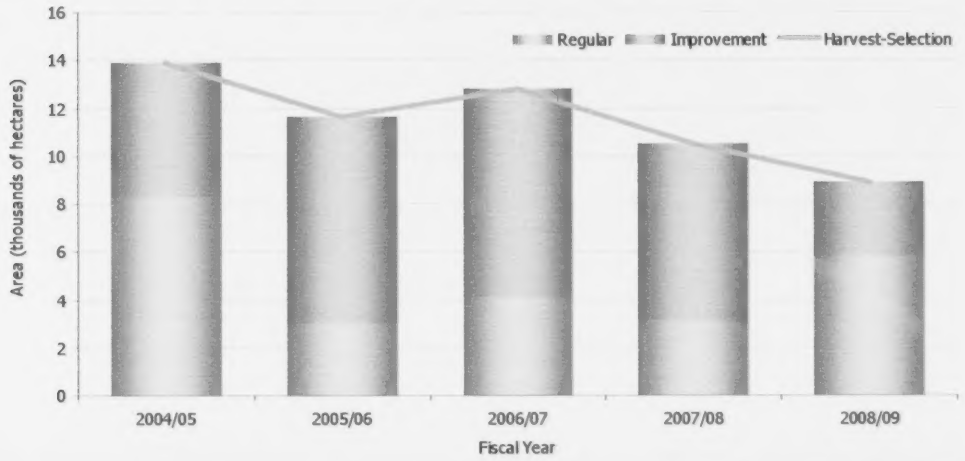


Figure 5c - Area of regeneration - selection silvicultural system



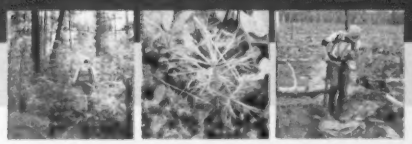


Figure 5d - Area of regeneration - shelterwood silvicultural system

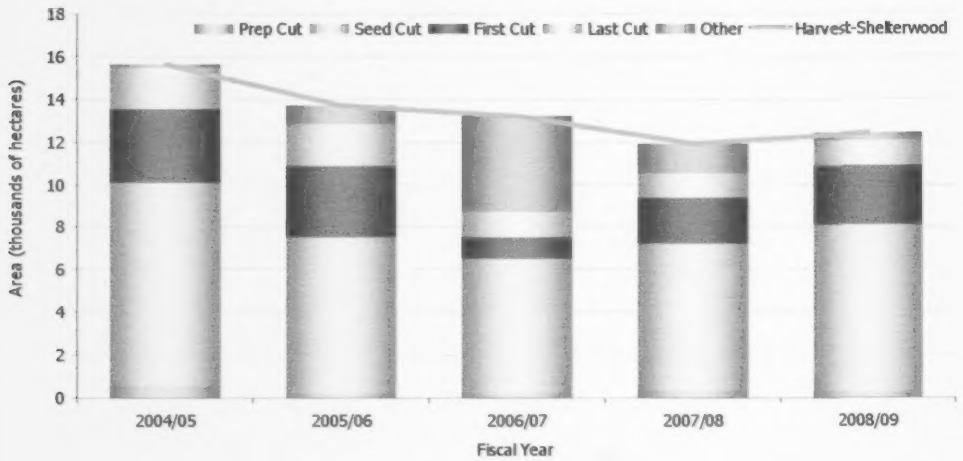


Figure 5e - Area of natural regeneration by silvicultural system

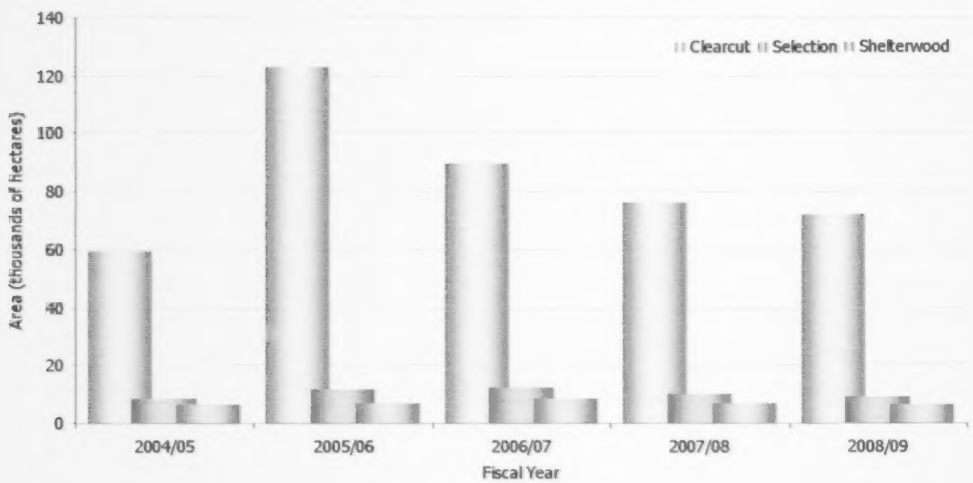


Figure 5f - Area of planted, seeded and scarified regeneration

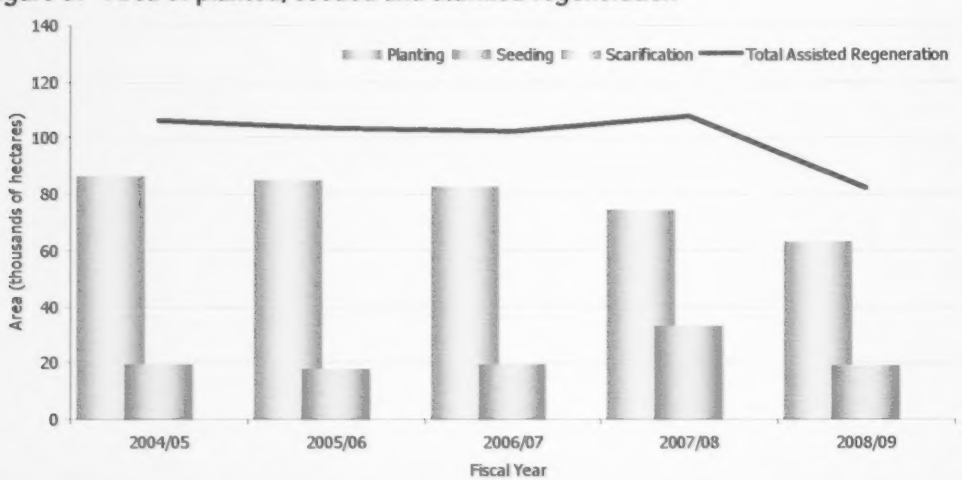


Figure 5g - Area of site preparation

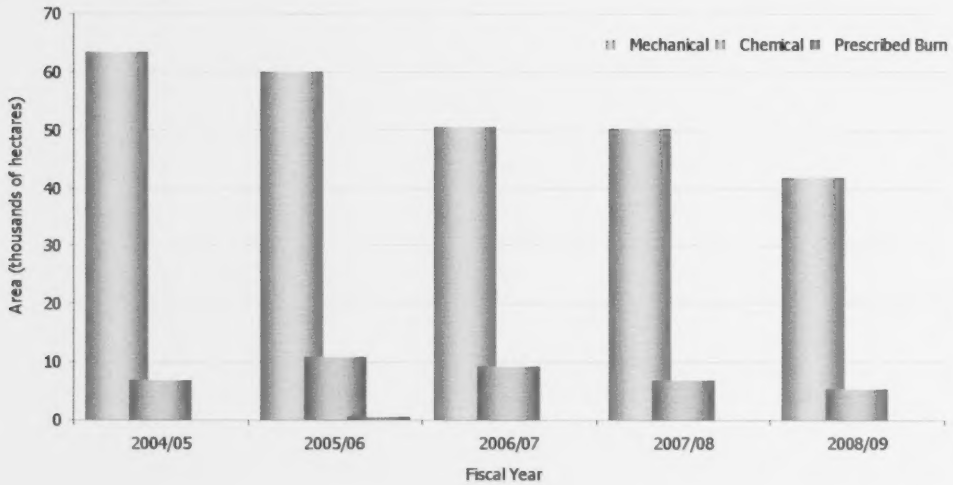


Figure 5h - Area tended

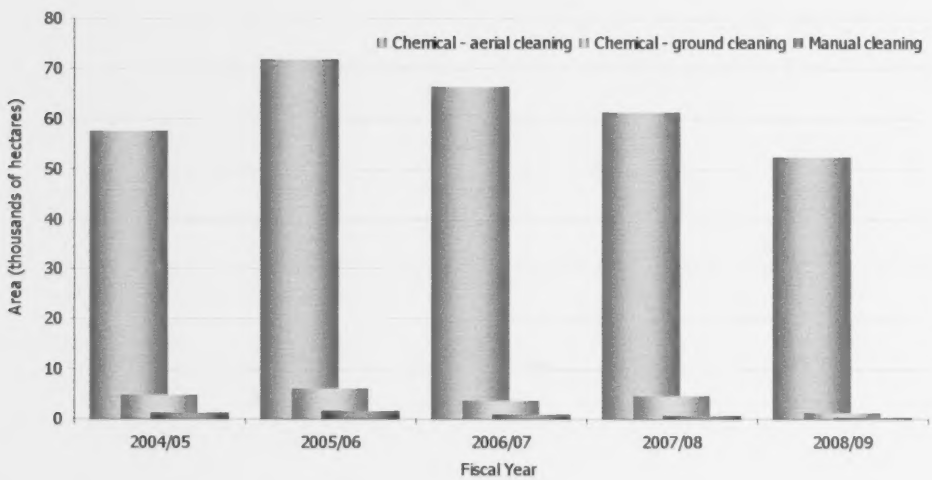
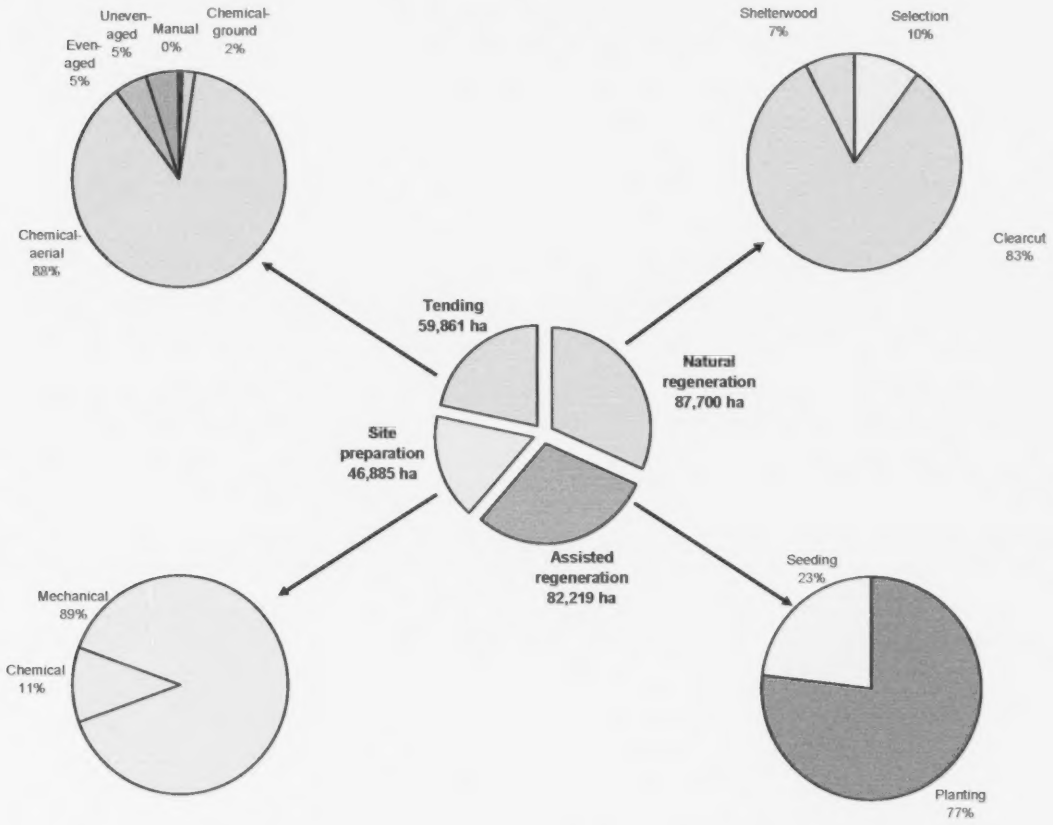


Figure 5i - Regeneration, site preparation and tending - 2008/09

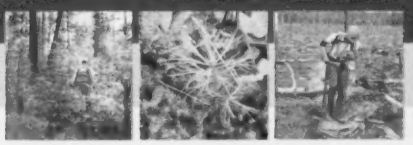


Protection

Protection operations prevent or manage the damage caused by insects and diseases.

Summary of Protection - 2008/09

- Monitoring data from previous spray programs indicated that insect populations were not at a level that required a spray program in 2008/09.



Silvicultural Effectiveness Monitoring

Harvest and renewal activities are reported annually for the year they are implemented. Determination of the success of these activities in regenerating the forest occurs by specific assessment methods, conducted a number of years (usually 5 to 15 years) after regeneration treatments are completed.

Free-To-Grow (FTG) assessments are an effectiveness monitoring tool that provide an indication of the success of silvicultural treatments, and information used to project the future forest condition. These assessments involve a variety of techniques, including field measurement of trees on sample areas of the forest, aerial surveys, and remote sensing. Some forest managers conduct these surveys annually, while others prefer to accumulate larger blocks that they assess once every few years. The Forest Renewal Trust Fund provides funding for these surveys on all management units.

In the forest management planning process, silvicultural ground rules are developed for all forest units. Prescriptions outlined in the ground rules identify silvicultural treatment packages intended to result in a prescribed future forest unit, and also identify other future forest units that will be accepted should the prescribed result not occur.

Regenerating areas being reported in this provincial annual report were harvested and treated a number of years ago (typically 5-15 years). However, in response to independent forest audit recommendations and inventory updating processes, a number of management units are continuing to assess backlog areas which may be considerably older (e.g., 30 years and older). These older areas are not representative of current practices. Those areas treated prior to April 1, 1994 occurred before the implementation of the CFSA and the associated Forest Renewal Trust and Forestry Futures Trust Funds.

The Forestry Futures Trust and the Forest Renewal Trust Funds provide the funding for forest managers to ensure that harvested areas receive the necessary treatments to achieve successful renewal. Forest managers may also apply for funding from the Forestry Futures Trust Fund to treat naturally depleted areas (e.g., areas depleted from forest fires).

All harvested areas must be renewed successfully to a FTG standard. Some of the areas found not FTG at this time may require re-treatment, and other areas may require tending (e.g., to suppress undesirable competing vegetation such as brush and grass). Other areas simply require the passage of more time to allow for the incremental growth necessary to

meet the height standard for FTG. Renewal success rates should continue to improve in future reports because of these legislative and funding changes.

Summary of Silvicultural Effectiveness Monitoring - 2008/09

- Area assessed for FTG was significantly lower in comparison to previous years (Figure 5j);
- Regeneration success was higher than the approximated five - year average (Table 5c); and
- Silviculture success was in line with the five - year average (Figure 5k). The success rate dropped significantly in comparison to 2007/08. Some of the assessed areas that were reported as not achieving FTG status could be retreated in the future to achieve a silvicultural success.

Table 5c - Area assessed for regeneration success (hectares)

Region[1]	2004/05	2005/06	2006/07	2007/08	2008/09	5 Year Average
Northwest Region						
Total Area Assessed	130,091	103,131	82,358	154,504	70,418	108,100
Total Area FTG	113,332	76,795	73,075	127,932	64,207	91,068
FTG Projected FU	47,041	50,458	28,336	106,926	30,695	52,691
% Regeneration Success	87.1%	74.5%	88.7%	82.8%	91.2%	84.2%
% Silviculture Success	36.2%	48.9%	34.4%	69.2%	43.6%	48.7%
Northeast Region						
Total Area Assessed	130,712	147,069	99,112	80,166	77,071	106,826
Total Area FTG	115,743	133,689	91,006	73,149	72,781	97,273
FTG Projected FU	53,122	81,496	43,312	51,461	41,219	54,122
% Regeneration Success	88.5%	90.9%	91.8%	91.2%	94.4%	91.1%
% Silviculture Success	40.6%	55.4%	43.7%	64.2%	53.5%	50.7%
Southern Region						
Total Area Assessed	9,870	9,521	15,159	12,086	14,593	12,246
Total Area FTG	8,491	9,358	13,544	10,848	13,800	11,208
FTG Projected FU	8,052	9,140	12,899	9,446	10,989	10,105
% Regeneration Success	86.0%	98.3%	89.3%	89.8%	94.6%	91.5%
% Silviculture Success	81.6%	96.0%	85.1%	78.2%	75.3%	82.5%
Ontario Totals						
Total Area Assessed	270,673	259,721	196,629	246,756	162,083	227,172
Total Area FTG	237,565	219,842	177,625	211,930	150,788	199,550
FTG Projected FU	108,215	141,094	84,547	167,833	82,903	116,918
% Regeneration Success	**87.8%**	**84.6%**	**90.3%**	**85.9%**	**93.0%**	**87.8%**
% Silviculture Success	**40.0%**	**54.3%**	**43.0%**	**68.0%**	**51.1%**	**51.5%**

[1] Percentages for Regeneration and Silviculture Success are compared to total area assessed for that year. On a province wide basis, the percentage of assessed area that was declared FTG to a prescribed standard is refered to as a "silvicultural success". The percentage of areas that are approved by an acceptable alternative standard is refered to as a "regeneration success".

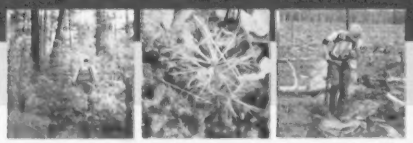


Figure 5j - Area assessed for regeneration success

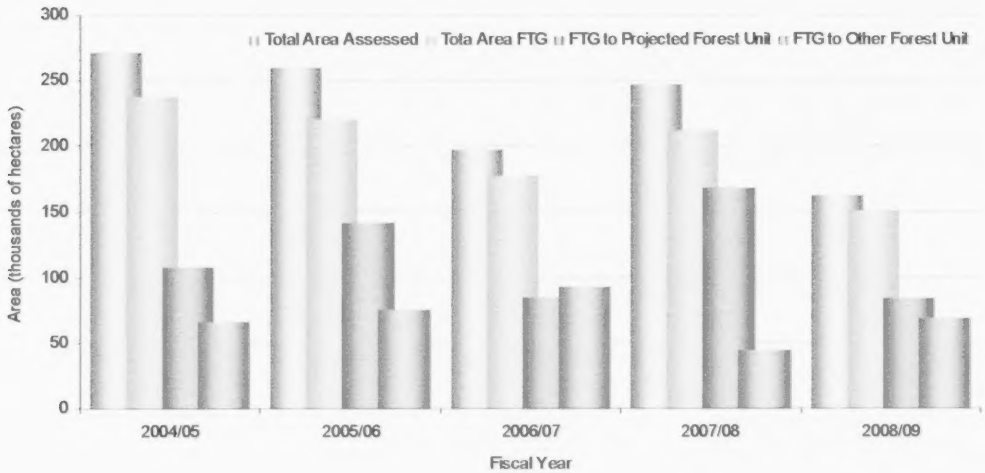
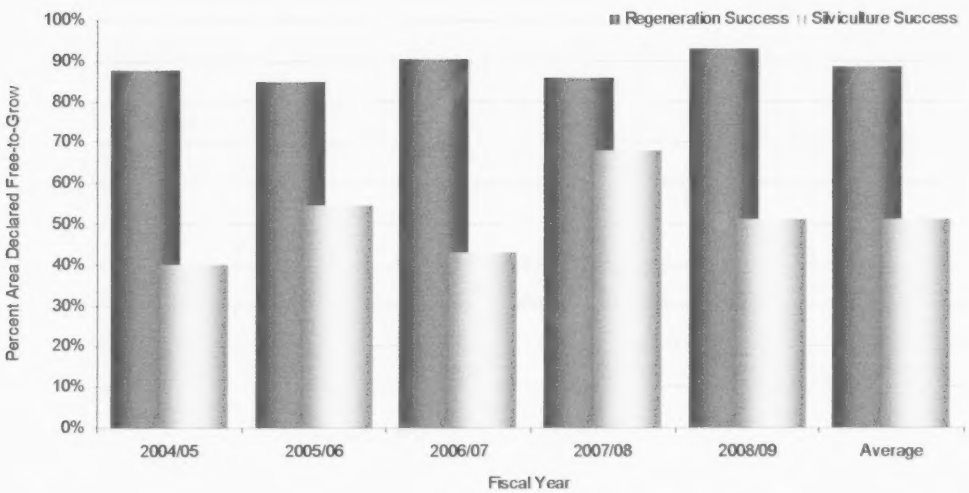


Figure 5k - Regeneration success



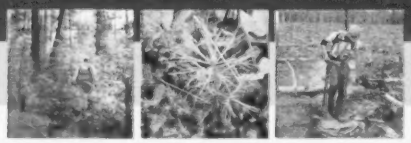
Funding for Forest Renewal and Maintenance

The financial mechanisms established under the CFSA, and as outlined in Chapter 2, ensure that there is funding available for forest renewal and maintenance. Each licensee pays an appropriate renewal charge to an account in the Forest Renewal Trust Fund, which may only be used to conduct eligible silviculture work on the management unit from which the stumpage was generated upon harvest.

Forest resource licensees, operating on management units where no SFL exists, pay renewal charges into the Forest Renewal Special Purpose account. This account provides dedicated funding for forest renewal and tending operations on the management unit. The MNR is responsible for administration of the Forest Renewal Special Purpose Account. As with the Forest Renewal Trust Fund, each management unit has its own separate account to cover forest renewal and tending costs.

Revenue for a third fund, the Forestry Futures Trust Fund, comes from a portion of the Crown charges that all licensees are required to pay. In addition, any administrative penalties assessed under the CFSA are paid into the Forestry Futures Trust Fund. In addition to these trust funds and special purpose accounts, the MNR supports forest renewal through the operation of the Ontario Tree Seed Plant and tree improvement programs.

Adjustments to renewal charges occur on individual management units to reflect the local costs of renewing and tending various species and to reduce specific accumulated surpluses in individual Renewal Trust Fund accounts. These rates will continue to be reviewed and adjusted annually to ensure that adequate levels of funding are maintained. A complete listing of the 2008/09 renewal charges for each management unit is provided in Appendix 3. Tables 5d and 5e in this section provide a summary of provincial forest renewal expenditures and trust fund contributions.



Summary of Forest Renewal and Maintenance Funding - 2008/09

- The Forest Renewal and Forestry Futures Trust Fund revenues (contributions) were less than the trust fund expenditures for 2008/09; and
- Due to reduced harvest levels, the revenue being contributed to the Trust Funds decreased. Silvicultural expenditures from the Forest Renewal Trust Fund was greater than the contributions for 2008/09. However, revenue contributions from past harvest levels had provided for adequate funds in the Forest Renewal Trust Fund to ensure regeneration activities continued as required.

Table 5d - Provincial forest renewal expenditures - 2008/09

Source	Expenditures (million $) 2008/09
Forest Renewal Trust Fund	$59.2
Forestry Futures Trust Fund	$16.5
Special Purpose Account	$0.6
Direct MNR Expenditures	$0.4
Total Renewal Expenditures	**$76.7**

Table 5e - Trust fund contributions - 2008/09

Source	Contributions (million $) 2008/09
Forest Renewal Trust Fund	$46.2
Forestry Futures Trust Fund	$18.1
Total Trust Fund Contributions	**$64.3**

6. Forest Access Roads

Overview of Forest Access Roads

This chapter provides information on the construction and maintenance of all forest access roads (primary, branch and operational roads). The chapter includes details on the level of maintenance activities, including grading, snow-plowing, re-alignments, flood repairs, bridge repairs, and any other activity necessary to maintain existing roads. It also includes information on access controls established on forest roads, the decommissioning of forest roads and government funding programs for forest access roads.

Primary roads are roads that provide principal access to the management unit, and are constructed, maintained and used as the main road system on the management unit. Primary roads are normally permanent roads, although there may be significant periods of time when specific primary roads are not required for forest management purposes.

Branch roads are roads that branch off existing or new primary or branch roads, providing access to and through areas of operations on a management unit.

Operational roads are roads within areas of operations that provide short-term access for harvest, renewal and tending operations. Operational roads are normally not maintained after they are no longer required for forest management purposes, and are often site prepared and regenerated.

Roads Funding Programs

There are a number of roads funding programs available for the construction, maintenance and monitoring of forest access roads on Crown land.

Forest Access Capital Roads Program

The Forest Access Capital Roads Program is jointly funded by the Ministry of Natural Resources and the Ministry of Northern Development, Mines and Forestry (MNDMF). This program funds access roads that are the responsibility and liability of the Crown, to maintain as multipurpose roads. Most of the road work funded by the two ministries serves several purposes, including public access, public safety and forest management.

Provincial Roads Funding Program

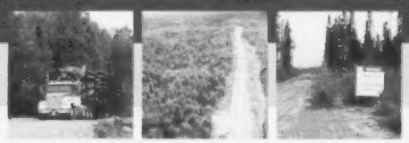
The *Minister's Council Report on Forest Sector Competitiveness*, released in June 2005, recommended that the provincial government assume its proportional share of the costs of building and maintaining forest access roads on Crown forests that serve multi-resource uses. The report recommended that the government's share cover 100% of primary road costs, and 50% of secondary road costs. As a result, in September 2005 the Minister of Natural Resources announced the Road Maintenance Funding Program; with $28 million available to the forest industry to cover the costs of maintaining primary forest access roads. In February 2006 the Premier and the Minister of Natural Resources announced an additional $47 million of funding for the Provincial Roads Funding Program. Beginning April 1, 2006, a total of $75 million was made available annually to contribute to the expenses incurred by the forest industry to construct and maintain forest access roads.

Roads eligible for funding have to be identified as primary or branch forest access roads in approved Forest Management Plans and Annual Work Schedules, be located on Crown land, and not be limited to use only by the forest industry. These funded forest access roads benefit not only the forest industry, but also many other users, including: mining companies, tourism operators, Aboriginal communities, utility and railway companies, hunters, anglers, campers, trappers, cottagers, and the general public. These roads also provide part of the rural infrastructure for emergency preparedness and response.

Log haul truck on a primary forest access road

Road Access Control and Decommissioning

For reasons of public safety and/or resource management, forest access roads may be closed to certain uses on a temporary, seasonal, or permanent basis. Methods used to control or limit access can be classified into two categories: erecting signs to advise the public of the restriction (referred to as signage); or, installing gates or using other physical means such as ditching (referred to as gated or physical barrier). Decommissioning of roads may be accomplished by physical means (ditching, culvert or bridge removal, berming and scarification), or roads may be left to deteriorate naturally. Operational roads may be constructed and decommissioned in the same year. Road access control and decommissioning must be planned in advance of construction, and documented in the FMP for each management unit. These activities must also be reported in the management unit annual report.



Summary of Roads Funding Programs - 2008/09

- In 2008/09 spending for the Forest Access Capital Roads program (MNR/MNDMF) was $3.2 million;
- In 2008/09 the MNR entered into 48 road construction and maintenance agreements with Sustainable Forest License and Forest Resource License holders on 46 management units (including the Algonquin Forest Authority); and
- The forest industry incurred costs of $87.0 million on the construction, re-construction, maintenance, and monitoring of over 21,000 km of primary and branch roads, and the construction/repair/replacement of over 1,300 stream crossings. The government's share of this work was just under $75 million (Table 6a). The forest industry incurred 100% of the costs of constructing and maintaining all operational roads on Crown lands.

Summary of Roads Construction, Maintenance and Use Management - 2008/09

- In 2008/09, 4,010 kilometres of primary, branch and operational roads were constructed (Table 6b and 6c). The majority of the roads constructed during 2008/09 were operational roads; and
- In 2008/09, 27,644 kilometres of roads were maintained, with the majority of the road maintenance activities occurring on primary roads (Table 6d and 6e).

Figure 6a - Primary and branch road construction

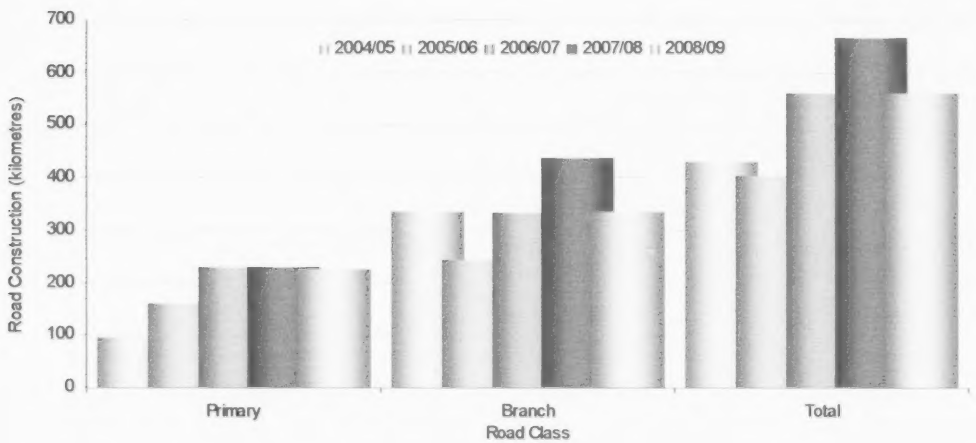


Table 6a - Roads funding program - 2008/09

	Total Road Program Reimbursement		
Management Unit	Primary Roads	Branch Roads	Total
Algoma Forest	$1,026,128	$53,703	$1,079,831
Algonquin Park Forest	$1,703,264	$257,420	$1,960,684
Armstrong Forest	$1,145,381	$34,493	$1,179,874
Bancroft-Minden Forest	$496,283	$77,670	$573,953
Big Pic Forest	$2,131,774	$132,652	$2,264,426
Black River Forest	$334,313	$164,385	$498,699
Black Sturgeon Forest	$567,504	$438,818	$1,006,321
Caribou Forest	$1,057,590	$435,451	$1,493,041
Cochrane Moose River	$605,144	$0	$605,144
Crossroute Forest	$2,751,444	$1,035,478	$3,786,921
Dog River-Mat Forest	$2,585,482	$259,479	$2,844,960
Dryden Forest	$520,721	$33,618	$554,339
English River Forest	$2,519,361	$109,518	$2,628,879
French-Severn Forest	$590,216	$49,103	$639,318
Gordon Cosens Forest	$4,227,189	$44,650	$4,271,838
Hearst Forest	$1,685,283	$291,089	$1,976,373
Iroquois Falls Forest	$1,791,234	$597,801	$2,389,035
Kenogami Forest	$3,408,862	$213,195	$3,622,057
Kenora Forest	$406,253	$148,428	$554,681
Lac Seul Forest	$2,244,593	$316,430	$2,561,023
Lake Nipigon Forest	$1,245,047	$372,356	$1,617,402
Lakehead Forest	$853,688	$142,966	$996,654
Magpie Forest	$564,678	$5,535	$570,213
Martel Forest	$2,807,994	$41,899	$2,849,893
Mazinaw-Lanark Forest	$298,447	$32,174	$330,621
Nagagami Forest	$1,008,379	$162,759	$1,171,138
Nighthawk Forest	$822,581	$127,123	$949,705
Nipissing Forest	$1,575,979	$26,998	$1,602,977
Northshore Forest	$1,560,363	$253,448	$1,813,811
Ogoki Forest	$1,919,303	$11,610	$1,930,913
Ottawa Valley Forest	$841,973	$90,581	$932,554
Pic River Ojibway Forest	$297,362	$31,243	$328,605
Pineland Forest	$1,056,637	$0	$1,056,637
Red Lake Forest	$475,487	$2,827	$478,314
Romeo Malette Forest	$962,048	$83,345	$1,045,393
Sapawe Forest	$598,041	$2,652	$600,694
Smooth Rock Falls Forest	$368,033	$19,706	$387,739
Spanish Forest	$3,001,438	$15,902	$3,017,340
Spruce River Forest	$1,357,727	$528,285	$1,886,012
Sudbury Forest	$920,339	$0	$920,339
Temagami Forest	$276,829	$122,000	$398,829
Timiskaming Forest	$4,331,564	$43,236	$4,374,800
Trout Lake Forest	$2,349,260	$511,695	$2,860,955
Wabigoon Forest	$2,449,214	$486,899	$2,936,113
Whiskey Jack Forest	$1,673,570	$18,437	$1,692,007
White River Forest	$1,040,714	$443	$1,041,157
	$66,454,710	$7,827,500	$74,282,210
		MNR Admin Costs	$717,790
		Total Funds Spent	**$75,000,000**

Table 6b - Road construction by road class and MNR Region - 2008/09

	MNR Region (km)			
Road Class	Northwest	Northeast	Southern	Total
Primary	80	146	0	226
Branch	196	133	5	334
Operational	1,360	1,920	170	3,450
Total	**1,636**	**2,199**	**175**	**4,010**

Table 6c - Total road construction (km) - 2004/05 to 2008/09

Road Class	2004/05	2005/06	2006/07	2007/08	2008/09
Primary	95	159	229	229	226
Branch	335	244	332	435	334
Operational[1]	n/a	n/a	n/a	4,208	3,450
Total	**430**	**403**	**561**	**4,872**	**4,010**

[1]Management unit annual reporting of operational road construction was not required until 2007/08.

Table 6d - Road maintenance by road class and MNR region - 2008/09

	MNR Region (km)			
Road Class	Northwest	Northeast	Southern	Total
Primary	9,291	7,051	909	17,250
Branch	3,699	1,026	447	5,172
Operational	1,901	3,014	306	5,222
Total	**14,891**	**11,091**	**1,663**	**27,644**

Table 6e - Total road maintenance (km) - 2004/05 to 2008/09

Road Class	2004/05	2005/06	2006/07	2007/08	2008/09
Primary	7,108	10,200	10,749	11,916	17,250
Branch	4,312	4,621	3,444	3,247	5,172
Operational	4,452	6,033	6,724	5,460	5,222
Total	**15,872**	**20,855**	**20,917**	**20,623**	**27,644**

Summary of Road Access Control and Decommissioning - 2008/09

- 1,938 kilometres of primary, branch and operational roads had access controls established in 2008/09 (Table 6f); and
- 717 kilometres of primary, branch and operation roads were decommissioned in 2008/09 by physical or natural means (Table 6g).

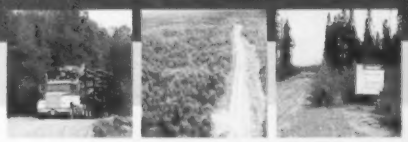


Table 6f - Road access controls established - 2008/09

	MNR Region			
Access Control Type	Northwest	Northeast	Southern	Total
Signage	1,518	191	0	1,709
Gate/Barrier	83	30	115	229
Total	**1,601**	**222**	**115**	**1,938**

Table 6g - Roads decommissioned - 2008/09

	MNR Region			
Decommision Type	Northwest	Northeast	Southern	Total
Physical	60	53	92	206
Natural	86	424	1	511
Total	**146**	**477**	**93**	**717**

Physical road decommissioning

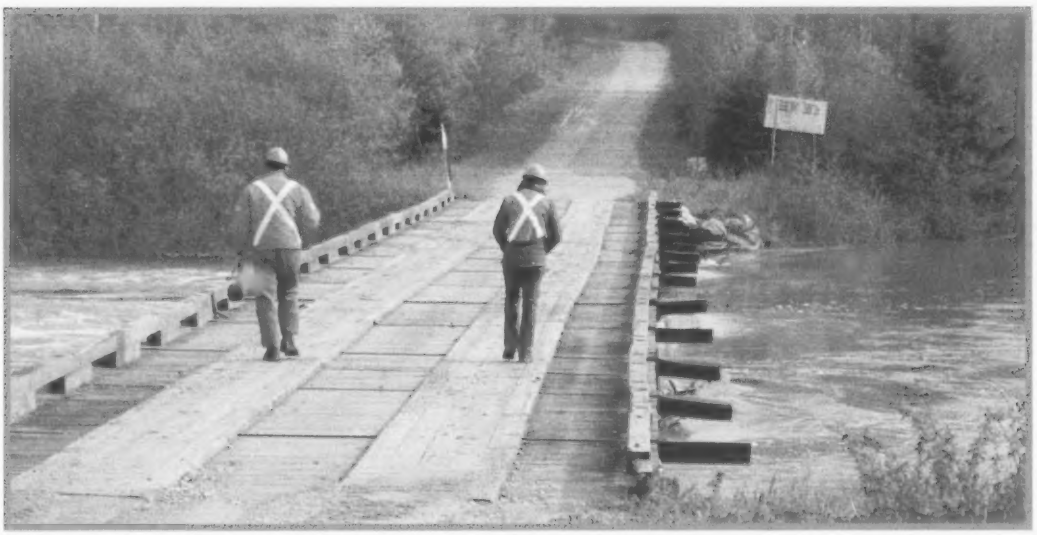
Overview of Compliance Monitoring

Ontario's forest operations compliance monitoring system is designed to ensure the Ministry of Natural Resources (MNR) and the forest industry conduct forest operations in compliance with legislation and in accordance with approved plans (e.g., forest management plans). It also ensures that forest management related statutes and regulations are interpreted consistently and enforced fairly but firmly in all cases of non-compliance.

The forest compliance program is based on a partnership between the MNR and forest industry, with a clear separation of roles and responsibilities. The industry role is one of "self-monitoring" wherein the Sustainable Forest Licence (SFL) holder has lead responsibility for a comprehensive forest operations compliance program as a condition of their licence. This monitoring program includes planning, (inspecting and reporting), training and education. The SFL holder is required to report all suspected incidents of non-compliance on their management unit (MU) to the MNR. As the regulatory agency, MNR retains full responsibility for administration and implementation of the Crown Forest Sustainability Act (CFSA) which includes monitoring, auditing, determining compliance status, taking appropriate enforcement action and applying remedies when necessary.

The compliance program reports infractions of the CFSA committed by private individuals as "non Licensee related". MUs not assigned to an SFL remain the responsibility of MNR for delivery of all aspects of the compliance program. The Forest Operations Information Program (FOIP) is the system used for recording compliance inspections. This web based application provides a consistent approach to all forest compliance inspectors for reporting inspections. Its use is mandatory for reporting on all forest operations inspections conducted on Crown land.

All MNR and forest industry forest compliance inspectors must be certified. This certification ensures consistent skills and competencies in compliance assessment and reporting among inspectors. To maintain certification, inspectors are required to undertake a program of continuing education and to undergo testing on a five year cycle.



Bridge Inspection

Remedy and Enforcement

Industry must report all suspected non-compliance situations, which MNR then verifies and determines the appropriate enforcement action and/or remedy.

The earlier an operational problem is identified and responded to, the more likely impacts can be avoided, prevented or mitigated. In many instances, prompt corrective action is undertaken and enforcement action or remedies are not warranted.

CFSA enforcement and remedy provisions are primarily directed at licensees of the Crown, but any person who contravenes the CFSA may be subject to its remedies. Any enforcement action taken or remedy applied will be unique to and reflect the circumstances and nature of the infraction and the offender.

Although all incidents of non-compliance are reported in the fiscal year in which they occurred, it often takes time to determine and apply remedies (e.g. under investigation or subject to court action). Remedies are recorded and reported when resolved.

Summary of Forest Operations Compliance Monitoring - 2008/09

- The average compliance rate across all operations (access, harvest, renewal, and maintenance) for both industry and MNR is 95% for the 2008/09 reporting period;
- 299 certified forest operations compliance inspectors submitted 3,874 inspections to FOIP during 2008/09, a reduction in reports of 19% from 2007/08;
- The decrease in the number of inspections undertaken by both industry and MNR (Table 7a) may be attributed to management unit consolidations and the overall decline in area harvested resulting from economic decline; and
- The number and value of remedy and enforcement actions (Table 7b) has decreased from previous years, and can most likely be attributed to the same factors noted above.

Culvert Inspection (road and water crossing compliance activity)

OPERATION TYPE[1]	INDUSTRY			MNR		
	Total # Reports	Total # Compliant Reports	Total # Non Compliant Reports	Total # Reports	Total # Compliant Reports	Total # Non Compliant Reports
Access	832	800	32	242	197	45
Harvest	1,861	1,805	56	526	480	46
Renewal	251	242	9	85	79	6
Maintenance	55	54	1	22	21	1
2008/09 Total	**2,999**	**2,901**	**98**	**875**	**777**	**98**
2007/08	3,908	3,749	159	898	788	116
2006/07	4,918	4,721	197	1,280	1,101	179
2005/06	5,817	5,584	233	1,377	1,180	197
2004/05	6,806	6,561	245	1,604	1,359	245

[1] Past Provincial Annual Reports have included tables similar to Table 7a, but with an additional column summarizing the 'Significance of Compliance Issues'. Non-compliances were normally rated as either 'Minor', 'Moderate', or 'Significant'. This rating was based on a subjective assessment. Subsequently it has been determined that the remedies applied in response to non-compliances are a better measure of their severity.

Table 7b - Remedy and enforcement actions taken - 2008/09

Method		Number [3]	Value
Written Warning		112	n/a
Orders	Stop/Limit/Amend Order	0	n/a
	Repair Order	2	n/a
	Compliance Order	14	n/a
Administrative Penalty[1]		13	$28,140
Offence Charge[2]		14	$8,500
License Suspension and Cancellation		0	n/a
Total Actions Taken 2008/09		**155**	**$36,640**
Total Actions Taken 2007/08		239	$53, 506
Total Actions Taken 2006/07		291	$154, 806
Total Actions Taken 2005/06		324	$101, 744
Total Actions Taken 2004/05		454	$108, 880

[1] To Forestry Futures Trust Fund

[2] To Consolidated Revenue Fund (general revenue)

[3] The numbers and values of remedies and enforcement actions may include persons who did not hold a forest resource licence and were subject to remedies under the Act.

To learn more about the Forest Compliance Monitoring program or to view annual reports of forest operations inspection reports for all the forest management units in Ontario please visit: http://ontario.ca/forests

Overview of Independent Forest Audits

Independent Forest Audits (IFAs) are a requirement of the Crown Forest Sustainability Act (CFSA - Ontario Regulation 160/04), Condition 28 of the MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario (2003), and are a condition of all Sustainable Forest Licences (SFLs). All management units are audited at least once every five years to review operations and to examine forest management activities carried out over the previous five years.

An independent forest audit is a systematic and documented verification process to assess adherence to the forest management plan and to the planning process. The performance of both the licensee and the MNR are audited during the IFA. Assessing the interpretation and application of provincial legislation, manuals, policies, and guidelines at the management unit level is also part of the audit. Auditors examine the effectiveness in achieving the planned objectives and provide an assessment of forest sustainability for the management unit. Audit teams also review licensee compliance with the obligations of their specific SFL.

The audit terms of reference are the same for all IFAs. This includes the audit team personnel requirements. All members of an audit team must have a minimum of five years recent and relevant experience in forest types similar to those being audited. They must be independent of the operations they audit, as well as free from conflict of interest throughout the process. The audit team must include a Registered Professional Forester. Audit teams are required to provide an audit against the requirements that were in effect during the audit period, and prepare a subsequent report for publication. Auditor selection and contract management is facilitated by the Forestry Futures Trust Committee and audits are paid for with money from the Forestry Futures Trust Fund.

In order to fully address the audit purpose and objectives, an audit process and protocol document sets out the forest management principles, criteria, and procedures for

undertaking IFAs. The audit protocol identifies eight guiding principles: commitment; public participation; forest management planning; forest management plan (FMP) implementation; systems support; monitoring; achievement of management objectives and forest sustainability; and, contractual obligations. For each principle, a series of specific criteria have been identified that, when met, will result in achievement of the principle.

Where criteria are not achieved, or the audit team observes a critical lack of effectiveness in forest management activities, the audit team may develop a recommendation to address the situation. Recommendations are directed to the licensee, the MNR, or both auditees jointly. Audit teams may also recognize and document exceptional forest management practices (commonly known as "best practices").

Action plans must be developed by the auditees to address audit report recommendations. Recommendations directed to the SFL holder and MNR district are addressed in a management unit action plan. Management unit action plans are developed by the SFL holder and MNR district staff and are approved by senior MNR executives. Recommendations directed to MNR branch and region offices are addressed in a separate annual provincial action plan. A status report on the implementation of the action plan is required two years after its approval, to ensure progress is occurring as specified in the plan. All IFA reports are tabled in the Legislature. IFA reports and action plans are available at http://www.ontario.ca/forests.

Summary of Independent Forest Audits - 2008/09

Independent forest audits were completed on five management units in 2008. All five management units were managed via SFLs throughout the five-year audit period. Table 8a provides a complete listing of the 2008 audits by management unit, licensee and independent auditor.

Table 8a - List of Independent Forest Audits and associated auditors for 2008

Management Unit	Licensee	Independent Auditor
Dryden Forest	Dryden Forest Management Company Ltd.	KBM Forestry Consultants Inc.
Kenora Forest	Weyerhaeuser Company Ltd.	Arbex Forest Resource Consultants Ltd.
Nighthawk Forest	AbitibiBowater Inc.	Craig Howard RPF
Ottawa Valley Forest	Ottawa Valley Forest Inc.	KBM Forestry Consultants Inc.
White River Forest	Domtar Inc.	ArborVitae Environmental Services Ltd.

Overall, the results of the 2008 IFAs were positive. Four of the five audit reports concluded that, during the term of the audit, the forests were being managed in general compliance with legislation and policy requirements, licence requirements, and within the principles of sustainable forest management (Table 8b). In all cases, the auditors recommended the sustainable forest licence be extended for a further five-year term. In one case (Dryden Forest) the auditors recommended that further seedling competition control on areas regenerated following harvest be undertaken prior to the Minister extending the licence.

Table 8b - Independent Forest Audit results for 2008 audits

Management Unit	In Compliance[1]	Sustainably Managed	SFL Extension Recommended
Dryden Forest	Yes[2]	Yes[2]	Conditional
Kenora Forest	Yes	Yes	Yes
Nighthawk Forest	Yes	Yes	Yes
Ottawa Valley Forest	Yes	Yes	Yes
White River Forest	Yes	Yes	Yes

[1] *Managed in overall compliance with legislative and policy requirements in effect during the audit period.*

[2] *The audit team concluded overall compliance with the legislation, regulations and policies that were in effect and that forest sustainability was being achieved with the exception that seedling competition control was required in many renewal areas.*

The audit reports provided a total of 64 recommendations. Table 8c provides a summary of recommendations by audit principle. The majority of the recommendations were related to plan implementation (33%), followed by monitoring (25%), and public participation (16%).

Table 8c - Summary of 2008 Independent Forest Audit recommendations by principle

Recommendations by Audit Principle[1]	Management Unit					Total	Percent of Total (%)[2]
	Dryden Forest	Kenora Forest	Nighthawk Forest	Ottawa Valley Forest	White River Forest		
Commitment	0	0	0	0	0	0	0%
Public Participation	2	1	1	1	5	10	16%
Forest Management Planning	3	0	2	2	2	9	14%
Plan Implementation	9	3	5	1	3	21	33%
System Support	0	1	0	2	0	3	5%
Monitoring	4	3	5	1	3	16	25%
Management Objectives and Forest Sustainability	1	0	0	0	1	2	2%
Contractual Obligations	0	0	0	1	2	3	5%
Total	**19**	**8**	**13**	**8**	**16**	**64**	**100%**

[1] *Values exclude the final recommendation on licence extension.*

[2] *This represents the number of audit recommendations by audit principle as a percentage of the total number of audit recommendations (Percentage numbers have been rounded off).*

Recommendations common to a number of the reports, grouped by subject matter, include:

Public Participation

- The MNR needs to ensure that Local Citizens Committee Terms of Reference are updated to meet forest management planning requirements;
- The MNR needs to work with Aboriginal groups to discuss the forest management planning program and the benefits provided through forest management; and
- The MNR needs to maintain comprehensive documentation of LCC meetings and public information centres.

Forest Management Planning

- The MNR needs to review the Forest Resource Inventory and forest management planning cycles to ensure they are properly synchronized to meet planning needs;
- The MNR needs to follow the review processes outlined in the Forest Management Planning Manual (FMPM), including the confirmation of progress checkpoints and the lists of required alterations; and
- Certain licence holders need to improve operational planning and operator training prior to operations beginning, particularly related to the protection of sensitive sites.

Plan Implementation

- Certain licence holders need to improve their slash management practices;
- A number of licence holders need to improve their road-building practices (specifically cross drainage installation) and ensure compliance inspections of culverts;
- Certain licence holders need to expand their programs for tending renewed stands and increase supervision of tree planting;
- Assumptions utilized in forest management plans need to reflect actual results and conditions, including forest unit transitions, operating areas, and the natural forest condition; and
- A number of licence holders need to ensure that prescriptions are implemented as planned.

Monitoring

- The MNR and licence holders need to follow compliance planning requirements and submit compliance reports within required timelines;
- The MNR and industry need to improve their understanding of compliance standards and cooperate on determining causes of compliance infractions;
- The MNR needs to ensure adequate funding and resources are available to meet compliance monitoring commitments;
- A number of licence holders need to improve their silviculture effectiveness monitoring and reporting programs;

- Certain licence holders need to ensure that all annual reports meet Forest Management Planning Manual requirements; and
- The MNR needs to ensure that website postings of compliance data reflects previously reported results.

Systems Support

- Recommendations identified the need for improvements in District MNR staffing levels, particularly related to compliance monitoring and forest management plan development.

Table 8d summarizes the recommendations by the organization the recommendation is directed towards. Recommendation responsibility was split roughly evenly between the licensee (42% of all audit recommendations) and the MNR (47% of all audit recommendations). Eleven percent of the audit recommendations were assigned jointly to the licensee and the MNR. The audit reports identified three best practices (Table 8e).

Table 8d - Summary of 2008 Independent Forest Audit recommendations by responsibility

	Recommendations by Organization[1]			
Management Unit	Licensee	MNR	Joint (Licensee & MNR)[2]	Total
Dryden Forest	11	6	2	19
Kenora Forest	4	3	1	8
Nighthawk Forest	6	6	1	13
Ottawa Valley Forest	1	6	1	8
White River Forest	5	9	2	16
Total[3]	**27 (42%)**	**30 (47%)**	**7 (11%)**	**64 (100%)**

[1] *Values exclude the final recommendation on licence extension.*

[2] *Recommendations directed at planning teams were assigned as joint recommendations.*

[3] *The number in parenthesis represents the number of audit recommendations by organization as a percentage of the total number of audit recommendations.*

Table 8e - Summary of 2008 Independent Forest Audit best practices

Management Unit	Best Practice
Ottawa Valley Forest	The Analysis Documentation of modeling inputs and rationale for specific inputs was excellent in its completeness, discussion of analysis and decisions, and general readability of a technical component of the forest management plan.
White River Forest	1. Wawa District MNR has been strongly supportive in furthering Pic Mobert and Pic River participation in planning and in the forest harvest sector. 2. The Team that developed the 2008 FMP has produced an exceptionally good document.

Summary of 2008 IFA Annual Provincial Action Plan

Recommendations directed to MNR region and branch were addressed in a separate annual provincial action plan for the first time in 2008. These types of recommendations were previously included within the individual management unit action plans. The change was made in response to the 2006 review of the independent forest audit process.

Thirteen recommendations were directed to MNR region and branch. Examples of actions being taken to address some of the recommendations include:

- Continuing efforts to improve relationships with Aboriginal communities;
- Improving the consistency of funding to support the collection and maintenance of values information used in forest management planning;
- Coordinating forest resource inventory and FMP cycles to better meet the needs of planning teams; and
- Improving how licensees track and report on forest sustainability.

For more detailed information please refer to the provincial action plan on the MNR website.

Summary of 2004 - 2008 Audit Reports

Table 8f summarizes the audit results from 48 audit reports completed over a five-year period from 2004 to 2008. During this five-year period 41 reports (85%) indicated management units were managed in accordance with legislative and policy requirements in effect during the audit term. A further four audit reports (8%) identified management units that were generally managed in compliance with legislative and policy requirements; however, in these instances the auditor noted significant exceptions or conditions that required immediate action.

Table 8f - Summary of 2004-2008 audit reports

Audit Year	Audit Reports	Extend	Extend with Conditions	Do Not Extend
2004	8	6	2	0
2005	11	8	0	3[1]
2006	15	14[2]	1	0
2007	9	9[3]	0	0
2008	5	4	1	0
Total	**48**	**41**	**4**	**3**

[1] *Includes the Cochrane-Moose River Management Unit which is not managed under a Sustainable Forest Licence.*

[2] *Includes the Temagami Management Unit which is not managed under a Sustainable Forest Licence.*

[3] *Includes the Algonquin Park Forest which is not managed under a Sustainable Forest Licence.*

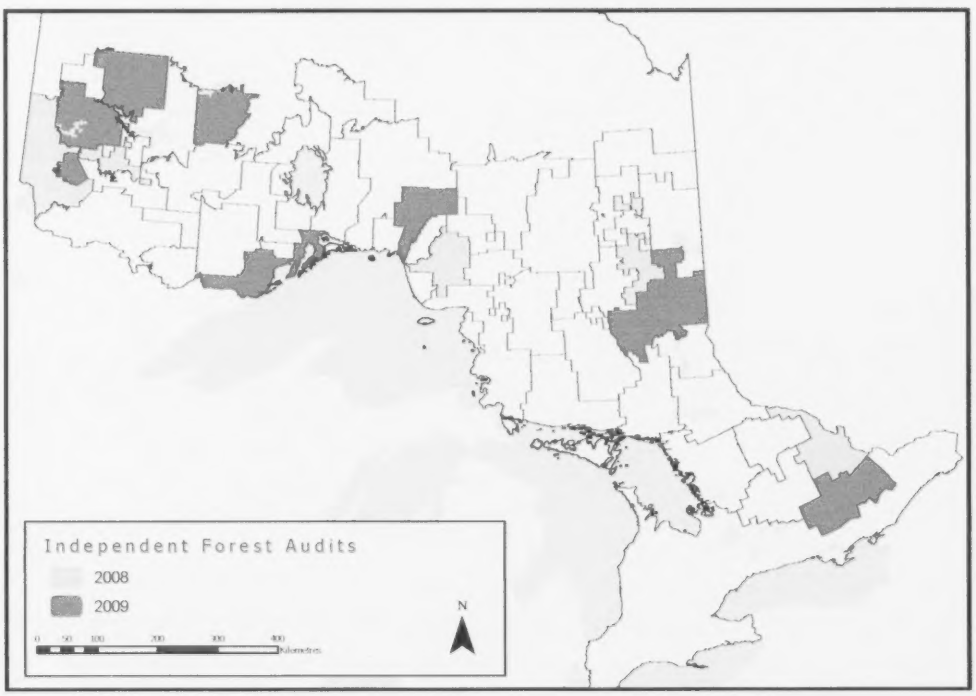
The Independent Forest Audit program is serving its purpose. Audit reports identify areas for improvement before they begin to have serious consequences. The MNR and SFL holders respond by putting solutions in place, which are documented in mandatory action plans that are developed subsequent to the completion of audit reports.

Independent forest audit on the Kenora Forest

Future Audit Program

Independent Forest Audits are scheduled for the following seven forests in 2009: Big Pic, Caribou, Lakehead, Mazinaw-Lanark, Timiskaming, Trout Lake, and Whiskey Jack (Figure 8a). The results of the audits will be published upon completion. All of the forests are being audited for a third time under the Independent Forest Audit Program.

Figure 8a - Management units audited in 2008 and management units scheduled for audit in 2009



9. Forest Certification

Overview of Forest Certification

Forest certification is a market-oriented means of promoting sustainable forest management, in which an independent third party evaluates forest management systems according to external pre-established standards. In April 2004 the Minister of Natural Resources announced his intention to have all Sustainable Forest Licences certified to an acceptable performance standard by the end of 2007. The certification process requires applicants to demonstrate to an independent third party that they are complying with, or progressing towards, their chosen certification standard.

Forest products consumers are assured of an unbiased evaluation when forest certification evaluations are implemented by independent third party organizations (called certifiers). Within the limits of its provincial government mandate, the MNR provides technical and policy advice, both during the development of certification standards and to forest companies seeking certification of forest lands in Ontario.

There are three forest certification standards used by Ontario forest companies.

1. The Canadian Standards Association (CSA) Sustainable Forest Management (SFM) Standard, approved by the Standards Council of Canada;
2. The two standards of the international Forest Stewardship Council (FSC) Principles and Criteria for Forest Management that are applicable to Ontario: FSC Standards for Well Managed Forests in the GLSL Forests of Ontario and Quebec (draft); and the National Boreal Standard; and
3. The Sustainable Forestry Initiative Inc.'s, Sustainable Forestry Initiative (SFI).

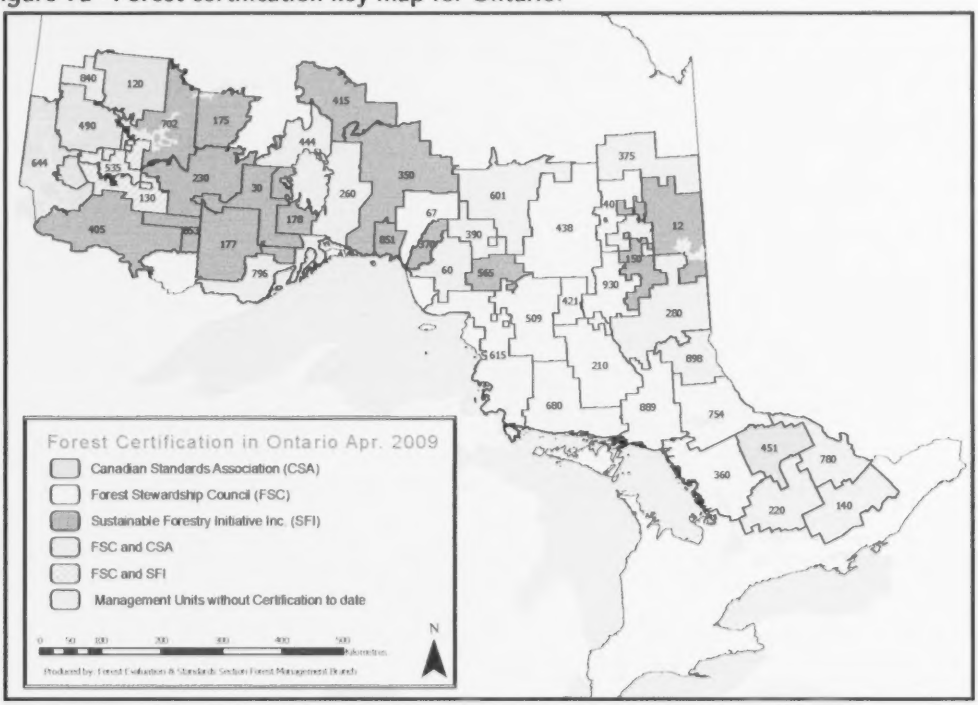
Many companies, as a first step in forest certification, have registered their environmental management systems to the International Organization for Standardization Environmental Management System (ISO) 14001.

The MNR ensures the sustainable forest management of Crown forests through a rigorous policy and regulatory framework. Forest companies operating in Ontario are required to comply with long-term, ecosystem-based forest management planning. Extension of a SFL is dependent upon satisfactory results of a mandatory Independent Forest Audit. Therefore, forest management companies in Ontario are well positioned to meet any forest certification/registration system standard. Figure 9a and Table 9a show forest management units that have been certified in Ontario as of April 2009.

Summary of Forest Certification - 2008/09

- The Big Pic and Wabigoon forests were certified to the FSC standard for the first time; and
- All previously registered / certified forest management units continued efforts to demonstrate ongoing conformance to their selected certification systems during the fiscal year.

Figure 9a - Forest certification key map for Ontario.


Forest Certification in Ontario Apr. 2009
Canadian Standards Association (CSA)
Forest Stewardship Council (FSC)
Sustainable Forestry Initiative Inc. (SFI)
FSC and CSA
FSC and SFI
Management Units without Certification to date
N

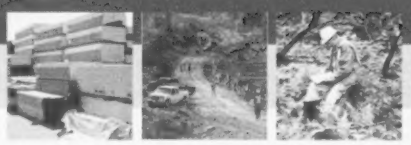
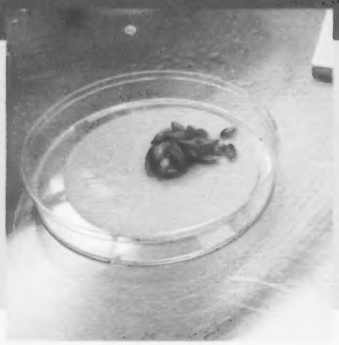


Table 9a - Sustainable forest licences certified and not certified in Ontario as of April 1, 2009

Management Unit	Sustainable Forest Licence Holder	Certification Standard (Registration date)
Algoma Forest - 651	Clergue Forest Management Inc.	FSC (Jun 2005)
Algonquin Park Forest - 451	Algonquin Forestry Authority	CSA (Feb 2008)
Bancroft-Minden Forest - 220	Bancroft-Minden Forest Company Inc.	Not certified
Big Pic Forest - 067	**Marathon Pulp Inc.**	**FSC (Jul 2008)**
Black River Forest - 370	Great West Timber Limited	SFI (Jun 2007)
Black Sturgeon Forest - 178	Bowater Canadian Forest Products Inc.	SFI (Feb 2009)
Caribou Forest - 175	Bowater Canadian Forest Products Inc.	SFI (Feb 2009)
Crossroute Forest - 405	Abitibi-Consolidated Company of Canada	SFI (Feb 2009)
Dog River-Matawin Forest - 177	Bowater Canadian Forest Products Inc.	SFI (Feb 2009)
Dryden Forest - 535	Dryden Forest Management Company Ltd.	Not certified
English River Forest - 230	Bowater Canadian Forest Products Inc.	SFI (Feb 2009)
French-Severn Forest - 360	Westwind Forest Stewardship Inc.	FSC (Feb 2007)
Gordon Cosens Forest - 438	Spruce Falls Inc.	FSC (Apr 2008)
Hearst Forest - 601	Hearst Forest Management Inc.	Not certified
Iroquois Falls Forest - 012	Abitibi-Consolidated Company of Canada	SFI (Feb 2009)
Kenogami Forest - 350	Terrace Bay Pulp Inc.	SFI (Nov 2007)
Kenora Forest - 644	Weyerhaeuser Company Ltd.	CSA (Apr 2008)
Lac Seul Forest - 702	McKenzie Forest Products Inc.	SFI (Jun 2007)
Lake Nipigon Forest - 260	Lake Nipigon Forest Mangement Company	Not certified
Lakehead Forest - 796	Greenmantle Forest Inc.	Not certified
Magpie Forest - 565	Dubreuil Forest Products Limited	SFI (Jun 2007)
Martel Forest - 509	Tembec Industries Inc.	FSC (Jan 2006)
Mazinaw-Lanark Forest - 140	Mazinaw-Lanark Forest Inc.	Not certified
Nagagami Forest - 390	Nagagami Forest Management Ltd.	Not certified
Nighthawk Forest - 150	Abitibi-Consolidated Company of Canada	SFI (Feb 2009)
Nipissing Forest - 754	Nipissing Forest Resource Management Inc.	FSC (Nov 2008)
Northshore Forest - 680	Northshore Forest Inc.	FSC (Jun 2005)
Ogoki Forest - 415	Long Lake Forest Products Inc.	SFI (Mar 2007)
Ottawa Valley Forest - 780	Ottawa Valley Forest Inc.	Not certified
Pic River Ojibway Forest - 851	Great West Timber Limited	SFI (Jun 2007)
Pineland Forest - 421	Pineland Timber Company Ltd.	FSC (Aug 2005)
Red Lake Forest - 840	Red Lake Forest Management Company Ltd.	Not certified
Romeo Malette Forest - 930	Tembec Industries Inc.	FSC (Nov 2004)
Sapawe Forest - 853	Atikokan Forest Products Ltd.	SFI (Jun 2007)
Smooth Rock Falls Forest - 040	Tembec Industries Inc.	FSC (Mar 2005)
Spanish Forest - 210	Domtar Inc.	FSC (Aug 2006)
Spruce River Forest - 030	Abitibi-Consolidated Company of Canada	SFI (Feb 2009)
Sudbury Forest - 889	The Vermillion Forest Management Company Ltd.	FSC (May 2006)
Timiskaming Forest - 280	Timiskaming Forest Alliance Inc.	Not certified
Trout Lake Forest - 120	Domtar Pulp and Paper Products Inc.	CSA (Dec 2006)
Wabigoon Forest - 130	**Domtar Pulp and Paper Products Inc.**	CSA (Dec 2006) / **FSC (Sep 2008)**
Whiskey Jack Forest - 490	Abitibi-Consolidated Company of Canada	CSA (Feb 2005)
White River Forest - 060	Domtar Inc.	FSC (Aug 2007)

Note: Units in **bold** represent certification for 2008/09.



Overview of Forest Science, Policy Development and Research

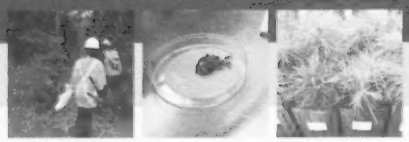
The knowledge base for sustainable forest management is continually expanding. MNR remains current with this expanding knowledge base through research, scientific studies, and technical and policy development programs in a variety of subjects, including:

- Development of new and improved data and information sources;
- Creation and implementation of new policies, procedures, and forest management guides;
- Development of new forest management methods, models, and tools; and
- Development and implementation of long-term monitoring programs and scientific studies.

This chapter highlights significant advances and milestones during 2008/09 in specific policy development, technical development, and scientific programs related to forest management made by the MNR in cooperation with its partners. Many research projects are in progress or deal with subjects indirectly related to forest management and are not reported in this document. More information about other research work undertaken by the MNR is available at http://ontariosforests.mnr.gov.on.ca.

Climate Change and Carbon Sequestration

Over the last 50 to 100 years, increased industrialization and human activities have begun to affect the balance of the Earth's natural climate. Increasing amounts of greenhouse gases are causing the Earth's atmosphere to heat up. When this global warming affects our weather patterns and climate conditions, it is referred to as climate change. In Ontario, it is expected

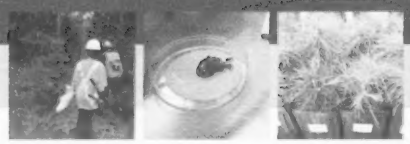


that the average temperature will rise by as much as three to eight degrees Celsius over the next century. Climate change will affect many of the social and environmental values that Ontarians have come to appreciate.

In 2008/09, the MNR continued to implement its strategic plan on climate change in an effort to mitigate the rate of global warming and the impacts associated with climate change. The MNR has sponsored, cosponsored, or participated in many research projects designed to provide a better understanding of the effects of climate change on the health of Ontario's ecosystems, communities, and people.

Research examining carbon storage in Ontario's forests and wood products continued in 2008/09. A model was developed to predict forest carbon budgets, including the amount of carbon stored in dead and live trees, understorey vegetation, downed woody debris, soil and wood products from harvested trees. Based on this model, the amount of carbon stored in wood products is expected to grow substantially between 2000 and 2100 and is estimated to far outweigh the growth of carbon in forests themselves. Ontario Forest Research Institute (OFRI) researchers continue to make progress on estimating carbon budgets for Ontario's managed forests. After modifying a U.S. model to include natural disturbance and better reflect Ontario conditions, the revised model (FORCARB-ON) was applied to Ontario's forest management units. Initial results indicate that Ontario's managed forest is projected to be a carbon sink during both Kyoto's first commitment period and the 21st century. Researchers also found that much of the carbon removed from the forest during harvesting is stored in long-term wood products and landfills.

Forest management can play a role in increasing storage of carbon in forests through silviculture, resulting in more carbon dioxide being removed from the atmosphere. Researchers concluded that sustainable forest management maintains the total forest carbon stock and that the resulting wood products provide mitigation benefits. These results were shared nationally via the Canadian Institute of Forestry's lecture series as well as at Pollution Probe's *State of the Science on Forest Carbon Management in Canada* workshop. The results were shared provincially at the Ontario Professional Foresters Association annual meeting and the OFRI Seminar Series. The next steps will include working with partners to analyze the life cycle of wood products and developing means of understanding how climate change will affect forest carbon.



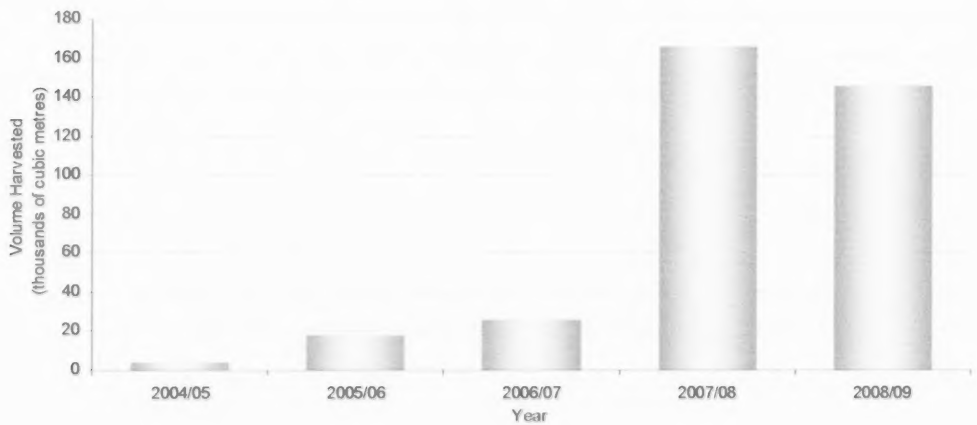
Forest Biofibre Policy

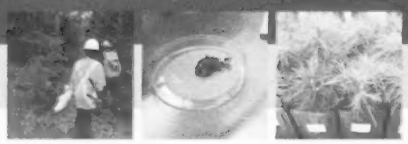
The use of non-renewable fossil fuels, such as oil and natural gas, is seen as a major contributor to greenhouse gas emissions and climate change. To assist in addressing these environmental issues there is a need to make a shift to a low carbon economy by using renewable resources, such as forest biofibre, to provide energy and materials currently derived from fossil fuels.

In 2008/09, a new policy was introduced to guide the allocation and use of previously unused trees and tree parts that could spur innovation and help to diversify the economy. This guiding policy for the use of forest biofibre supports the development and use of clean technologies, helps reduce dependence on fossil fuels, reduce energy costs through cogeneration and other bio-energy projects, and provides a source of renewable material to produce bioproducts. The increase in forest biofibre utilization in 2007 and 2008 (Figure 10a) helped to stimulate the creation of the biofibre policy. The forest biofibre policy was finalized and approved on August 13th 2008.

The opportunity exists for Ontario to use its abundant supply of forest biofibre, industrial capacity, infrastructure and expertise to support northern and rural economies create new business opportunities, support sustainable growth and generate new wealth. Resources such as forest biofibre will be used to replace non-renewable inputs for the production of biomaterials, bioenergy and other bioproducts that can reduce the province's dependence on fossil fuels.

Figure 10a - Biofibre utilization from Crown forests in Ontario





Emulating Natural Disturbance Patterns

Research studies aimed at improving the understanding of natural fire regimes in Ontario's Boreal forest were completed in 2008/09 with an emphasis on knowledge transfer. OFRI researchers held a series of information sessions to share results with MNR region and district offices as well as forest industry staff across Ontario. OFRI researchers also summarized the results of multiple-scale studies (which begun in 2005) to meet Condition 39c of the Declaration Order Regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario. Among the findings was that the randomness in fire events makes it difficult to generalize and explain fire patterns and resulting residual patterns. For the most part, guide directions were found to fall within the range of natural variability of the study fires but do not reflect that variability.

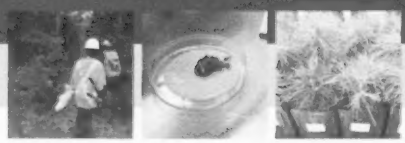
Reports summarizing multiple-scale studies include:

- An Assessment of Tree, Snag, and Downed Wood Residuals in Boreal Fires in Relation to Ontario's Policy Directions for Emulating Natural Forest Disturbance;
- An Assessment of Residual Patches in Boreal Fires in Relation to Ontario's Policy Directions for Emulating Natural Forest Disturbance; and
- Size Class Distribution and Spatial Proximity of Fires in a Simulated Boreal Forest Fire Regime in Relation to Ontario's Policy Directions for Emulating Natural Disturbance.

Progress on Forest Management Guides

The draft *Forest Management Guide for Great Lakes - St. Lawrence Landscapes* and its accompanying science and information packages were completed in the fall of 2008. The draft guide was posted on the Environmental Registry for a 60 day public comment period ending on January 26, 2009. Revisions were made to address the comments received and the final draft was reviewed by the Provincial Forest Technical Committee. Preparation of the draft *Forest Management Guide for Boreal Landscapes* continued in 2008/09, but it is not complete. Its release is pending on completion of the caribou habitat regulation and caribou conservation plan.

Work on the draft *Forest Management Guide to Conserve Biodiversity at the Stand and Site Scales* (Stand and Site Guide) continued through 2008/09 leading to the posting of a proposal on the Environmental Registry from November 27, 2008 to January 26, 2009. Comments received through the Environmental Registry posting were thoroughly reviewed and led to numerous changes to the guide. Pilot testing and socio-economic impact analysis were undertaken and the results were reported to the Provincial Forest Technical



Committee. Additional changes were made to the guide to reflect the results of pilot testing and work was initiated on various tools to facilitate its implementation, once approved.

The first five year review was completed for *the Silviculture Guide to Managing Spruce, Fir, Birch, and Aspen Mixedwoods*. Information was gathered from a number of sources including MNR and forest industry staff, academia, independent forest audit reports, forest management plan exceptions to silvicultural ground rules, and boreal mixedwood silviculture research program staff. Provincial Forest Technical Committee members were involved in reviewing the findings and determining the resulting recommendation. The result of the review was that the guide does need to be revised once some new information is available. This includes: results of current research, effectiveness monitoring data and silvicultural effectiveness monitoring information, relevant information from the Landscape and Stand & Site Guides once they are finalized, the 2009 Forest Management Planning Manual (under preparation at the time), and the revised ecological land classification system.

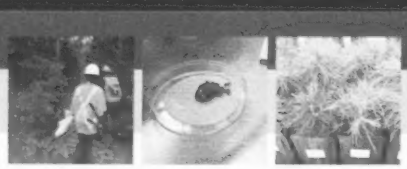
The Forest Management Guide webpage, http://ontario.ca/forestguides, gives an overview of the current guides and their status.

Spatial Modelling to Evaluate the Effectiveness of Forest Management Guides

In 2008/09, the MNR continued to provide support to planning teams using spatial forest estate models (SFMM, BFOLDS, Patchworks etc.) by providing software to regional analytical staff and spatial modelling best practices to planning teams. MNR also created a set of Provincial Impact Assessment Models to facilitate the analysis of policy impacts/implications at a provincial scale. This included undertaking a modelling technique evaluation of rolling planning horizons, using Remsoft's Woodstock. Rolling planning horizons may be used to evaluate the impacts changing conditions over time (e.g., climate change impacts on yields, or disturbance rates). Also in 2008/09, the Model Inventory Support Tool (MIST) was developed and first released to planning teams.

Ecological Land Classification Program

The Ecological Land Classification (ELC) program, formerly the Forest Ecosystem Classification Program, is mandated with the establishment of a comprehensive and consistent province-wide framework for ecosystem description, inventory and interpretation. The ELC mandate is derived from Term and Condition 97 of the original Forest EA Approval, which directed the MNR to continue work on the development and delivery of ecosystem



classification manuals and inventory approaches across the Area of Undertaking (AOU). The MNR is required to continue the development of the ELC program in accordance with Condition 41.

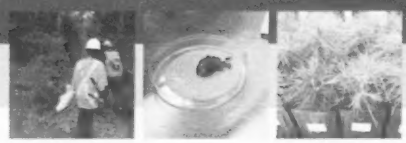
In 2008/09, work continued on the development of the ELC program including:

- The development and release of Provincial Substrates Version 1.0 (soil description) materials;
- The development and release of Boreal Treed Ecosites and Factsheets;
- The collaboration on development and implementation of Provincial Aerial Photo-Interpretation Manual in support of enhanced Forest Resource Inventory (Ver2.0) ;
- Ongoing analysis of treed vegetation types as part of Canadian National Vegetation Classification including external/interprovincial technical review of the Boreal forest; and
- User/practitioner training workshops and field courses (8) held province-wide including southern Ontario.

Significant progress has also been made in the delivery of the ELC program through improvements in inventory and mapping technology. The program has supported the development of the enhanced FRI program through:

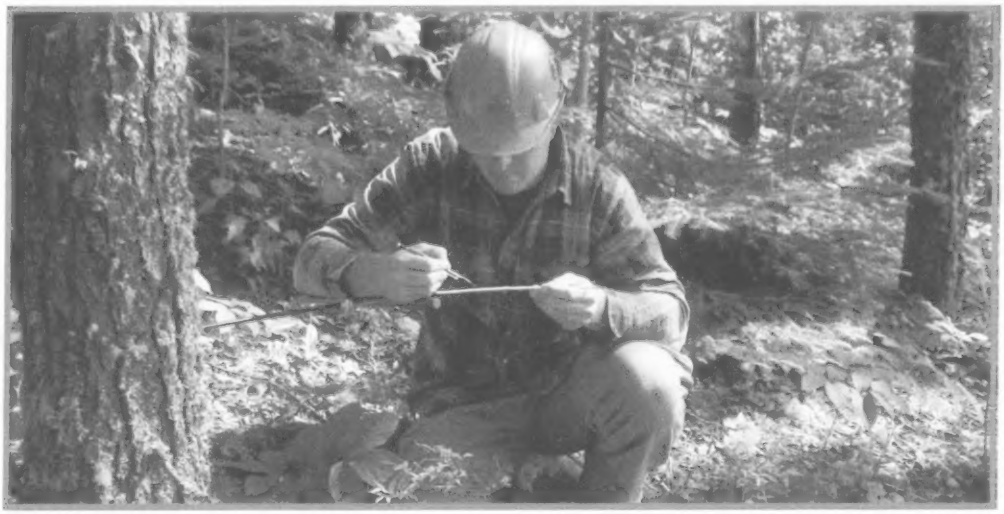
- New aerial photo interpretation manuals;
- Contributions to ground calibration and permanent plot data collection methods; and
- Training of aerial photo interpretation staff and ground calibration data collection crews.

In 2008/09, ELC ecosites were implemented in enhanced Forest Resource Inventory on two sustainable forest licenses.



Growth and Yield

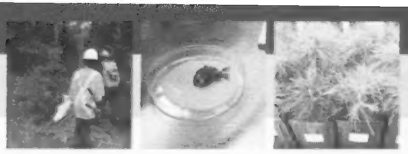
Measuring and predicting how trees and forests grow is the science of growth and yield. The Growth and Yield program in Ontario is actively involved in a wide range of activities: from the collection of field data and information, to the creation of new models, guidelines, and monitoring procedures. Results from this program are extensively utilized in forest management planning and help guide the determination of the sustainable harvest area. The program also plays a key role in shaping the models and tools used to forecast the growth and development of Ontario's forests. The core element of this program is an extensive network of permanent sample plots on which the growth and status of individual trees is tracked through time. Data collected from these plots provides information on forest growth and yield as influenced by site, forest structure, silvicultural treatments and natural events.



Growth and yield feild research work (counting annual tree growth rings)

In 2008/09, work continued on the Growth and Yield program, with the following program highlights:

- Conducted an internal review to assess and document what has been accomplished (since 1994) relative to program objectives and committed deliverables, determine the size and status of the plot network, and explore the program's ability to meet its corporate and legal obligations;
- Established partnerships with conservation authorities and county forests in southern Ontario to promote the re-measurement of 21 permanent sample plots (PSP);



- Worked in partnership with the Forest Ecosystem Science Co-op to re-measure 470 permanent growth plots, and establish 20 additional growth plots in northwestern Ontario;
- Continued to support forest management planning teams by updating and improving yield models from the extensive field collection of PSP data; and
- Established an additional 31 PSPs within the AOU.

Full-tree Harvest and Full-tree Chipping Studies

During the 1988-1992 EA hearing, concerns were raised about the effects of the full-tree logging method on sites with shallow soils, particularly nutrient losses and the associated effects on forest productivity. Term and Condition 101 of the original Forest EA Approval required the MNR to design and implement a study to address the effects of full-tree harvest and full-tree chipping on long-term forest productivity. The MNR's Timber Class EA Review (2002) reported on progress in the MNR's 20-year scientific research study that was initiated in 1994. The study examined harvest-related nutrient removal on sites with shallow and coarse-textured soils for the black spruce forest types. A companion study, headed by the Canadian Forest Service, was conducted on jack pine.

In 2001, the Center for Northern Forest Ecosystem Research (CNFER) researchers, on behalf of an MNR/forest industry partnership coordinated through the Forest Ecosystem Science Cooperative, began comparing operational tree-length and full-tree harvesting treatments to evaluate the sensitivity of shallow soil sites to nutrient loss and to estimate how this nutrient sensitivity varies across the region. In 2008/09, the project team collected the fifth year post-harvest data to determine current levels of available nitrogen (index of soil quality), regeneration status (stocking, density, species composition), and crop-tree performance (growth and foliar nutrition). This data, in part, will be used to initially assess the tree length vs. full-tree installations.

Wildlife Population Monitoring

Provincial wildlife population monitoring is undertaken to determine if healthy populations of forest wildlife continue to be found across the AOU and to contribute to an understanding of how forest management affects wildlife populations. The wildlife population monitoring program was reaffirmed through the EA Declaration Order as Condition 30.

Bull moose walking in a clearcut harvest block

In 2008/09, CNFER researchers continued to analyze the Moose Guidelines Evaluation Program collar data, with efforts focused on examining winter and summer thermal habitat use patterns of collared cow moose in harvested areas. The comprehensive GIS-based seasonal habitat use analyses are based on approximately 300,000 high-quality location estimates generated from 128 collared cow moose between 1995 and 2001. This work has provided support to the *Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales* by refining direction aimed at maintaining winter and summer moose thermal habitat in areas.

Other program highlights in 2008/09 include:

- Ongoing financial contribution to B.Sc. partnership that included migration monitoring, breeding bird survey, and a nocturnal owl survey;
- Ongoing partnership funding with University of Guelph for Algonquin Park small mammal monitoring;
- Multi-Species Inventory and Monitoring field trial evaluation in south-central Ontario region (herptiles and bats);
- Partnership Project with Canadian Forest Service to examine bird monitoring technology and survey design;
- Ongoing moose aerial inventory surveys; and
- Ongoing funding support of black bear population index network surveys.

Overview of Condition 34

Condition 34 of the Declaration Order regarding the MNR's Class Environmental Assessment Approval for Forest Management in Ontario requires the MNR district managers to conduct negotiations at the local level with Aboriginal peoples whose communities are situated in a management unit. These negotiations are to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits provided through the forest management planning process. The negotiations include but are not limited to the following matters:

- Providing job opportunities and income associated with forest and mill operations in the vicinity of Aboriginal communities;
- Supplying wood fibre to wood processing facilities (such as sawmills) in Aboriginal communities;
- Facilitating Aboriginal third-party licence negotiations with existing licensees where opportunities exist;
- Providing forest resource licences to Aboriginal people where unallocated Crown timber exists close to reserves;
- Developing programs to provide jobs, training and income for Aboriginal people in forest management operations through joint projects with Indian and Northern Affairs Canada; and
- Identifying other forest resources that may be affected by forest management or which can be addressed in the forest management planning process.

In addition, this chapter also reports on some of the forums for aboriginal community involvement in the forest management process. For the purposes of this Chapter, use of the term "Aboriginal" will be used to include references to "First Nations" and "Native" as per the

definition in the Canadian Constitution 35(2), unless quoted directly from a source or in the use of a proper name.

A list of the aboriginal communities situated within each district, or having an interest in forest management units within a district, is summarized in Table 11a.

Table 11a - Summary of Aboriginal communities in each district within the AOU - 2008/09

District	Aboriginal Communities
Algonquin Park	Antoine Algonquins, Mattawa/North Bay Algonquins, Bonnechere Algonquin First Nation, Whitney Algonquins, Algonquins of Greater Golden Lake, Algonquins of Pikwakanagan First Nation (Golden Lake), Snimikobi (Ardoch) Algonquin First Nation, Algonquin Nation Kijicho Manito (Bancroft), Shabot Obaadjiwan First Nation
Bancroft, Kemptville & Peterborough	Whitney Algonquins, Snimikobi (Ardoch) Algonquin First Nation, Alderville First Nation, Curve Lake First Nation, Mohawks of the Bay of Quinte, Ojibways of Hiawatha First Nation, Algonquins of Pikwakanagan First Nation (Golden Lake), Shabot Obaadjiwan First Nation, Bonnechere Algonquin First Nation, Algonquins of Greater Golden Lake, Algonquin Nation Kijicho Manito (Bancroft), Chippewas of Rama Mnjikaning First Nation, Kawartha Nishnawbe First Nation
Chapleau	Brunswick House First Nation, Chapleau Cree First Nation, Chapleau Ojibwe First Nation, Mattagami First Nation, Michipicoten First Nation, Missanabie Cree First Nation, Flying Post First Nation, Mississauga #8 First Nation, Sagamok Anishnawbek First Nation, Serpent River First Nation
Cochrane	Moose Cree First Nation, Wahgoshig First Nation, Taykwa Tagamou Nation, Mattagami First Nation, Matachewan First Nation, Flying Post First Nation
Dryden	Aboriginal People of Wabigoon, Eagle Lake First Nation, Lac Des Mille Lacs First Nation, Lac Seul First Nation, Ojibway Nation of Saugeen, Wabauskang First Nation, Wabigoon Lake Ojibway Nation, Naotkamegwanning Anishinabe First Nation (Whitefish Bay), Grassy Narrows First Nation
Fort Frances	Big Grassy First Nation, Couchiching First Nation, Lac La Croix First Nation, Rainy River First Nation, Naicatchewenin First Nation, Seine River First Nation, Stanjikoming First Nation, Nigigoonsiminikaaning First Nation, Anishinaabeg of Naongashiing (Big Island), Naotkamegwanning Anishinabe (Whitefish Bay), Ojibways of Onigaming (Sabaskong), Lac Des Mille Lacs First Nation, Wabigoon Lake Ojibway Nation, Metis community

District	Aboriginal Communities
Hearst	Constance Lake First Nation, Hornepayne First Nation, Taykwa Tagamou Nation, Moose Cree First Nation, Brunswick House First Nation, Chapleau Cree First Nation, Mattagami First Nation, Missanabie Cree First Nation, Flying Post First Nation, Matachewan First Nation
Kenora	Big Grassy First Nation, Wabauskang First Nation, Grassy Narrows First Nation, Iskatewizaagegan No. 39 Independent First Nation, Wabaseemoong Independent Nations (Whitedog), Obashkaandagaang (Washagamis Bay), Ochiichagwe'Babigo'ining First Nation (Dalles), Wauzhushk Onigum First Nation (Rat Portage), Shoal Lake No. 40 First Nation, Northwest Angle No. 33 First Nation, Northwest Angle No. 37 First Nation, Anishinaabeg of Naongashiing (Big Island), Ojibways of Onigaming (Sabaskong), Naotkamegwanning Anishinabe (Whitefish Bay)
Kirkland Lake	Wahgoshig First Nation, Matachewan First Nation, Beaverhouse First Nation
Nipigon	Biinjitiwaabik Zaaging Anishinaabek First Nation (Rocky Bay), Kiashke Zaaging Anishinaabek First Nation (Gull Bay), Red Rock Indian Band, Bingwi Neyaashi Anishinaabek, Fort William First Nation, Whitesand First Nation, Namaygoosisagagun (Community of Collins), Animbiigoo Zaagi'igan Anishinaabek First Nation (Lake Nipigon Ojibway), Aroland First Nation, Long Lake #58 First Nation, Ginoogaming First Nation (Long Lac #77), Constance Lake First Nation, Pays Plat First Nation, Poplar Point First Nation, Eabametoong First Nation, Marten Falls First Nation, Ojibways of Pic River (Heron Bay), Pic Mobert First Nation
North Bay	Temagami First Nation, Nipissing First Nation, Dokis First Nation, Antoine Algonquins, Mattawa/North Bay Algonquins, Matachewan First Nation
Parry Sound	Wasauksing First Nation (Parry Island), Henvey Inlet First Nation, Shawanaga First Nation, Magnetawan First Nation, Dokis First Nation, Wahta Mohawks, Moose Deer Point First Nation
Pembroke	Algonquins of Pikwakanagan First Nation (Golden Lake), Bonnechere Algonquin First Nation, Antoine Algonquins, Mattawa/North Bay Algonquins, Algonquins of Greater Golden Lake, Snimikobi (Ardoch) Algonquin First Nation, Algonquin Nation Kijicho Manito (Bancroft), Shabot Obaadjiwan First Nation, Whitney Algonquins
Red Lake	Pikangikum First Nation, Lac Seul First Nation, Cat Lake First Nation, Wabauskang First Nation, Slate Falls First Nation, Grassy Narrows First Nation, First Nation people living off reserves in the communities of Red Lake and Ear Falls

District	Aboriginal Communities
Sault Ste. Marie	Serpent River First Nation, Ojibways of Garden River, Mississauga #8 First Nation, Thessalon First Nation, Ojibways of Batchewana, Métis Nation of Ontario
Sioux Lookout	Mishkeegogamang First Nation, Lac Seul First Nation, Cat Lake First Nation, Ojibway Nation of Saugeen, Slate Falls First Nation
Sudbury	Dokis First Nation, Henvey Inlet First Nation, Mattagami First Nation, Chapleau Ojibwe First Nation, Mississauga #8 First Nation, Sagamok Anishnawbek First Nation, Serpent River First Nation, Temagami First Nation, Wahnapitae First Nation, Whitefish Lake First Nation, Whitefish River First Nation, Wikwemikong Unceded Indian Reserve, Zhiibaahaasing First Nation, Sheguiandah First Nation, Aundek Omni Kaning First Nation (Ojibways of Sucker Creek), M'Chigeeng First Nation (West Bay), Sheshegwaning First Nation, Brunswick House First Nation
Thunder Bay	Whitesand First Nation, Namaygoosisagagun (Community of Collins), Lac Des Mille Lacs First Nation, Fort William First Nation, Kiashke Zaaging Anishinaabek First Nation (Gull Bay), Red Rock Indian Band, Métis Nation of Ontario
Timmins	Mattagami First Nation, Flying Post First Nation, Matachewan First Nation, Moose Cree First Nation, Taykwa Tagamou Nation, Wahgoshig First Nation, Beaverhouse Aboriginal Community, Wahnapitae First Nation, Sagamok Anishnawbek First Nation, Whitefish Lake First Nation, Temagami First Nation, Temiskaming First Nation
Wawa	Ojibways of Pic River (Heron Bay), Pic Mobert First Nation, Homepayne First Nation, Michipicoten First Nation, Missanabie Cree First Nation, Pays Plat First Nation, Long Lake #58 First Nation, Ginoogaming First Nation (Long Lac #77), Constance Lake First Nation

Source: Condition 34 District Reports

Implementation of Condition 34

The scope of Condition 34 is broad, and its application and implementation are determined at the local level. The arrangements and agreements put into effect by MNR district managers and Aboriginal communities take different forms, in an effort to accommodate the unique needs, capacities, and situations of individual Aboriginal communities in the context of available opportunities.

In its decision, the Environmental Assessment (EA) Board ordered the MNR to build upon initiatives already underway, and to provide new opportunities for Aboriginal communities to benefit from forest management activities in their local areas. In endeavouring to develop opportunities for Aboriginal communities to benefit, MNR proceeds in implementing Condition 34 in a manner consistent with the Crown Forest Sustainability Act (CFSA). The statute provides legislative authority to the MNR, as well as a framework for the sustainable management and use of forest resources. The CFSA has enabled the MNR to put mechanisms in place that may assist in facilitating the implementation of Condition 34.

While responsibility for implementation of Condition 34 rests with the MNR, the EA Board recognized that the involvement of other parties is critical to successful implementation. Such involvement would include participation of Aboriginal communities, the forest industry, and other government bodies (e.g., Ontario ministries, Indian and Northern Affairs Canada, and Natural Resources Canada). Aboriginal communities may be individually involved in implementation of Condition 34, or as members of groups of communities with common interests situated in a common geographic area.

Participation in forest management and economic development activities is summarized under three categories; access to resources, silvicultural opportunities, and training and development.

District Progress

MNR is required to report a summary of the progress of on-going negotiations with Aboriginal peoples on a district-by-district basis. Of the 26 MNR districts, four are outside the Area of the Undertaking (AOU), including Aylmer, Aurora, Cambridge, and Midhurst. Peterborough and Kemptville districts are only partially included in the AOU. Accordingly, the reporting of Bancroft in this chapter will include parts of Peterborough and Kemptville districts located in the Mazinaw-Lanark Forest.

Highlights of the benefits provided to Aboriginal communities in 2008/09 are presented using the three categories set out above, in the order given. The information used is largely provided in the Condition 34 reports submitted by districts. In some instances there may be further information on benefits for Aboriginal communities that is not reported here.

Access to Resources

Aboriginal people are often in a position to operate as forest harvesters. Although Ontario's wood supply is almost completely allocated to Sustainable Forest Licence (SFL) holders, the MNR has helped the forest industry and Aboriginal communities negotiate access to resources

through various mechanisms. For example, harvest opportunities are sometimes made available through overlapping licences issued to Aboriginal communities or community members. Table 11b summarizes resources made available to Aboriginal communities, as reported by each district. Readers should note that information in the table is strictly a summary of districts submissions; additional opportunities may have occurred.

Table 11b - Aboriginal access to resources - 2008/09

District[1]	Tenure type	Estimated Total Allocation (000m^3)	Number of Aboriginal Communities Affected
Algonquin Park	Contract	76.6	1
Chapleau	Conditional Commitment Letter	60.0	1
Cochrane	Licence	220.0	2
Dryden	Licence	140.2	3
Fort Frances	Contract, Licence	358.0	8
Hearst	Contract, Licence	13.0	1
Kenora	Licence	90.0	3
Kirkland Lake	Contract, Licence	40.5	2
Nipigon	Contract, Licence	862.5	9
North Bay	Licence	69.0	4
Parry Sound	Licence	0.5	1
Pembroke	Licence	12.5	1
Red Lake	Personal Fuelwood Licence	0.2	1
Sault Ste. Marie	Conditional Commitment Letter	20.0	2
Sioux Lookout	Allocation	n/a	1
Sudbury	Licence	416.7	6
Thunder Bay	Licence	848.2	4
Wawa[2]	Contract, Licence	108.0	2

[1]Information was not provided for Bancroft and Timmins Districts.

[2] For the White River Forest in the Wawa District, the wood supply volume (83,000m^3 of the 108, 000m^3) is partially allocated; the remainder is set aside in FMP pending negotiations.

Silvicultural Opportunities

Forest renewal and tending includes growing nursery stock, planting, seeding, spacing, cleaning, thinning, and site preparation. Many Aboriginal peoples have experience in silvicultural activities. District managers have sought specific agreements between the forest industry and Aboriginal communities to outline the type and scope of silvicultural contract work that can be made available. Other key forest management activities, while not described as silviculture, are included in this section. These activities, such as road construction and maintenance, hauling and information gathering are integral to forest management. These types of work can contribute to an effective economic development program. Table 11c summarizes the availability of such other opportunities to Aboriginal peoples during the 2008/09 fiscal year, as reported by each district.

Table 11c - Aboriginal access to silvicultural contracts and other opportunities - 2008/09

District[1]	Estimated Value of Contracts / Opportunities (thousands $)		Number of Communities Affected	Types of Activities
	Industry	MNR		
Algonquin Park	168.0	27.0	9	Tree marking, manual cleaning, scarification, road construction, preparation of Aboriginal Background Information Report
Chapleau	n/a	17.0	1	Preparation of Aboriginal Background Information Report
Cochrane	n/a	14.3	2	Road construction and maintenance, beaver control
Dryden	n/a	0.0	2	Purchase of seedlings
Fort Frances	3,461.0	0.0	6	Tree planting, access fee, forest management services, thinning, cone collection, road construction and maintenance, spacing, brushing, water crossing inspections, beaver control, bush grinding, biomass hauling
Hearst	n/a	n/a	1	Values mapping project, road assessments

District[1]	Estimated Value of Contracts / Opportunities (thousands $)		Number of Communities Affected	Types of Activities
	Industry	MNR		
Kenora	n/a	n/a	1	Culvert maintenance, beaver control
Kirkland Lake	n/a	0.0	2	Tree planting, thinning, clearing Right-of-Way
Nipigon	50.0	n/a	5	Tree planting, road construction
North Bay	132.0	0.0	1	Tree planting, manual tending
Parry Sound	n/a	n/a	1	Deer yard improvements
Pembroke	0.0	5.0	1	Support for Earthwalker program
Sault Ste. Marie	n/a	n/a	1	Seedling production
Sioux Lookout	n/a	n/a	2	Road maintenance
Sudbury	211.2	n/a	4	Tending, seedling production, pre-commercial thinning, planting
Thunder Bay	322.5	5.0	8+	Tree planting, pre-commercial thinning
Timmins	n/a	15.0	3	Aboriginal Background Information Report development
Wawa	0.0	n/a	3	Values information collection and recording, preparation of Aboriginal Background Information Report

[1]Information was not provided for Bancroft and Red Lake Districts

Training and Employment

District managers have found ways to help co-ordinate existing federal and provincial programs to assist Aboriginal communities in preparing for increased participation in forest management activities.

In some districts, the forest industry provides the training strategy, recruitment and hiring support, and business opportunities for independent contractors. In some instances the MNR helps to foster Aboriginal training by providing funding, facilities or equipment. Sometimes districts provide direct training services, or leadership to move initiatives ahead. The following paragraphs summarize the highlights of training opportunities provided to Aboriginal communities by the MNR and the forest industry in accordance with the Condition 34 District Reports, noting relevant districts as appropriate.

Summary of Training Initiatives - 2008/09

A range of forest-related training and development initiatives were provided for the benefit of Aboriginal people. Opportunities were presented in a few larger, comprehensive programs, as well as in a multitude of local and focused offerings. Both the MNR and the industry made significant support to training.

The MNR's Aboriginal Youth Work Exchange Program (AYWEP) and the First Nations Natural Resources Youth Employment Program (often referred to as the First Nations Ranger Program) are examples of larger, comprehensive training programs. Through the AYWEP, at least eight districts arranged (typically) 8 week summer employment for Aboriginal youth (Thunder Bay, Chapleau, Kirkland Lake, Cochrane, Dryden, Hearst, Parry Sound and Sault Ste. Marie). AYWEP work placements focus on resource management projects, job skills readiness training and personal development training.

The First Nations Natural Resources Youth Employment Program (First Nations Ranger Program) is largely centered at Camp Firesteel, west of Upsala. The 7 week program employed 30 youth, 3 crew leaders in training and one crew leader from 10 First Nations (Cochrane, Dryden, Hearst and Nipigon). The program is administered by Confederation College and has received support from MNR, other ministries and agencies (Canada, Ontario and Aboriginal organizations) as well as a number of industry partners.

These programs focused on youth, a prominent emphasis in the training and development activity conducted. Key industry partners such as AbitibiBowater, Domtar and Tembec are actively engaged in support for youth (and other) training. Industry members often have policies and agreements to document their ongoing commitment to youth training and education. Other examples of youth training include MNR and industry support for the Algonquin Earthwalker Program (modelled on the Ontario Stewardship Rangers program in Pembroke); industry funding targeted at youth development and education, co-op and job sharing opportunities, and training (Timmins); and MNR participation at a community career fair for high school-aged Aboriginal youth (Sault Ste. Marie).

The most common training received (with a specific focus) is MNR's Forest Management Planning workshops. Various workshops are offered to all planning teams at appropriate intervals in the FMP development process. As more Aboriginal people join planning teams, the benefits of this program are reaching more communities. Aboriginal members were included in FMP training workshops in many districts (including Chapleau, Dryden, Fort Frances, Kirkland Lake, Sioux Lookout, Sudbury and Wawa).

The MNR also offered or supported many other training initiatives. Some examples included:

- Support for an Aboriginal individual taking a provincial wetland evaluation course (Sault Ste. Marie);
- Cedar knowledge sharing sessions, dealing with Aboriginal knowledge and western science (Chapleau);
- Provision of brief G.I.S. training sessions (Sudbury);
- Compliance training (North Bay); and
- Education on trapline reallocation process (Timmins).

Industry members have also supported a range of focused training initiatives:

- The Algonquin Forestry Authority (together with the MNR) advises communities of training opportunities, and offers to sponsor 1-2 individuals from each community (Algonquin Park);
- Training on forest harvest and equipment operations for members of two communities (Kenora);
- Support for an individual to take a five week construction training program (Timmins); and
- Provision of an annual week-long training session, in which Aboriginal community members join, addressing a range of forestry operations topics (Chapleau).

Aboriginal Employment in the Forest Industry

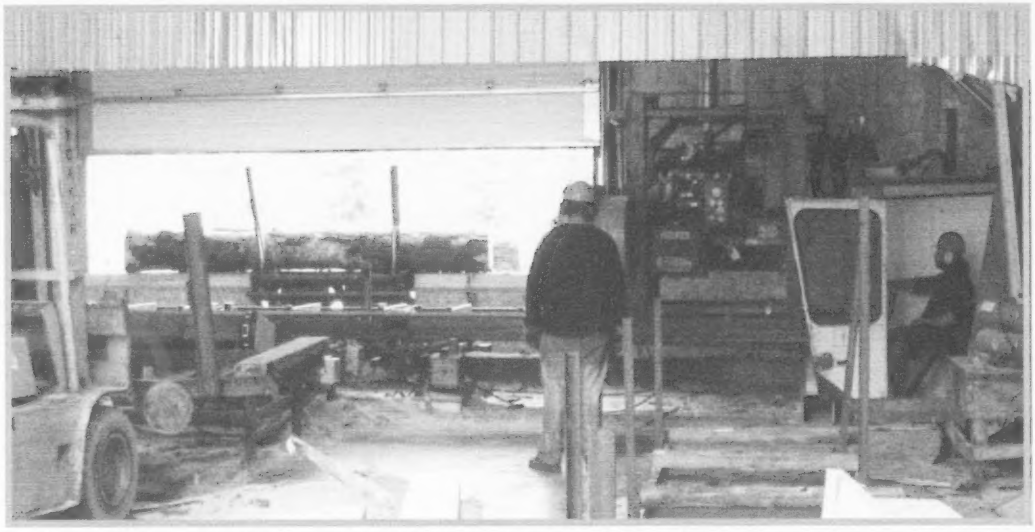
Although reporting on employment of Aboriginal people in the forest industry is not a requirement of Condition 34, some information on Aboriginal employment adds to a more comprehensive understanding of forest management benefits accruing to Aboriginal people. In 2008/09, participation levels of Aboriginal people working in all aspects of forest management varied. It is clear from district information that Aboriginal people were engaged in harvesting, as well as various silvicultural and other activities. Aboriginal people were also employed at forest resource processing facilities (mills).

The characteristics of Aboriginal employment in the forest industry vary widely. While some work is 'permanent' full-time, many of the employment opportunities are seasonal or part time, simply by the nature of the work. Work relationships also vary, from individuals serving as regular employees of forest industry businesses (e.g., mill workers), to self-employed individuals performing tasks on a casual, intermittent basis (e.g., road and culvert maintenance). Business entities established may be affiliated directly with Aboriginal communities, may be run by individuals who are members of an Aboriginal community, or may be operated by non-Aboriginal parties.

Summary of Aboriginal Employment in the Forest Industry - 2008/09

Mill employment

- 30-50 Aboriginal people were employed at AbitibiBowater's sawmill at the Fort William First Nation (Thunder Bay);
- Tembec employed three individuals at the Kapuskasing mill complex (Hearst);
- Employment opportunities have been provided in the Weyerhaeuser iLevel mill (Kenora);
- 80% of the work force in Long Lake Forest Products came from Aboriginal communities (Nipigon); and
- An estimated 35 individuals were employed at AbitibiBowater's Fort Frances mill (Fort Frances).



Lumber mill owned and operated by Aboriginal community members

Forest harvesting employment:

- A community affiliated business harvested 76,000 cubic metres (Algonquin Park);
- 97,100 cubic metres were harvested by two communities from the Nighthawk and Iroquois Falls Forests (Cochrane);
- Through operations associated with three Aboriginal communities, 115,000 cubic metres were harvested on the Dryden and Wabigoon Forests through overlapping licences (Dryden);
- Approximately 358,000 cubic metres on the Crossroute Forest were made available for harvest by parties affiliated with eight Aboriginal communities. Almost all parties harvested actively (Fort Frances);
- Three communities harvested 56,000 cubic metres that was allocated for them on the Nipissing Forest (North Bay); and
- A company linked to five Aboriginal communities was given a harvest approval for 154,000 cubic metres on the Sudbury Forest (Sudbury).

Harvesting in a white and red pine plantation

Silviculture and Other employment:

- An industry member on the Hearst Forest hired nineteen Aboriginal individuals for silvicultural work (Hearst);
- The SFL holder on the Timiskaming Forest awarded three contracts to Aboriginal communities and individuals for tree planting and pre-commercial thinning, providing work for about 20 people (Kirkland Lake);
- Five individuals from three communities were engaged to perform forestry operations on the Ogoki Forest (Nipigon);
- A community-affiliated organization was engaged to plant 600,000 trees on the Nipissing Forest (North Bay);
- Two community members were contracted by MNR to cut deeryard browse plots (Parry Sound);
- A community produced seedlings for planting on the Northshore and Sudbury Forests (Sudbury, Sault Ste. Marie); and
- Aboriginal-affiliated businesses conducted tree planting on the Armstrong and Lakehead Forests, employing approximately 21-30 community members (Thunder Bay).

In addition, districts indicated that Aboriginal people were engaged in, among other work activities, hauling of forest products, road construction and maintenance, site preparation, values collection and compliance.

Although reporting of Aboriginal employment is not required by Condition 34, districts have made some effort to include data on Aboriginal employment to the extent possible. Districts are in many cases able to report or estimate how many individuals are engaged in particular activities or contracts, but typically do not have access to information on employment numbers in other activities. Some districts have been able to provide estimates of total numbers of Aboriginal people employed by the industry in the district; some of these estimates exceeded 100 people per district. However, in many instances, data is incomplete on the overall numbers of Aboriginal people engaged in work in the forest industry. When this occurs, MNR districts have included statements in the condition 34 reports that the information is not readily available.

Role in Planning and Management

In addition to the negotiations to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits provided through the forest management planning process, MNR districts have sought out effective forums for Aboriginal communities to have a greater say in the planning and management of nearby forest resources. Forest Management Plans (FMPs) include a detailed Aboriginal Background Information Report and maps of Aboriginal Values. The Aboriginal Background Information Report summarizes the locations of natural resource features, land uses and values of interest to the Aboriginal communities, and forest management-related concerns of the communities. Districts have provided financial assistance to some communities either to prepare these components themselves or to hire outside contractors.

In many districts Aboriginal peoples are represented, together with industry and government, on forest management planning teams. Aboriginal members also often serve on local citizens committees (LCC). Table 11d summarizes Aboriginal involvement in forest management planning for each district. Readers should note that the numbers in the columns relating to Aboriginal community representation on LCCs and planning teams reflect each instance that a particular community has a member on a particular Committee or team. In some cases specific communities are represented on more than one LCC or planning team in a district; when situation like this occurs, they are counted separately in this report.

Table 11d - Aboriginal engagement in forest management planning processes - 2008/09

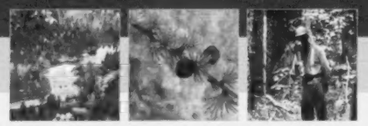
District	Aboriginal Communities Represented on LCCs		Aboriginal Communities Represented on Planning Teams		Aboriginal Background Information Reports on File for a Forest
	Active Member	Non-active Member	Active Member	Non-active Member	
Algonquin Park	2	0	9	0	5
Bancroft	0	0	11	0	0
Chapleau	0	2	8	4	12
Cochrane	2	1	2	1	6
Dryden	1	0	4	4	14
Fort Frances	2	0	2	0	15
Hearst	0	0	1	2	3
Kenora	0	0	0	0	0
Kirkland Lake	3	0	5	0	5
Nipigon	6	1	11	2	18
North Bay	6	0	6	0	6
Parry Sound	1	0	2	0	5
Pembroke	1	0	8	0	4
Red Lake	0	0	1	0	7
Sault Ste. Marie	0	0	4	0	6
Sioux Lookout	1	0	2	0	5
Sudbury	1	1	6	6	9
Thunder Bay	7	1	3	0	8
Timmins	4	0	11	3	9
Wawa	7	1	7	3	11

1 - Key to Management Units

2 - Forest Management Plans Approved for Implementation

3 - Forest Renewal Charges - 2008/09

4 - Forest-dependent Communities in Ontario



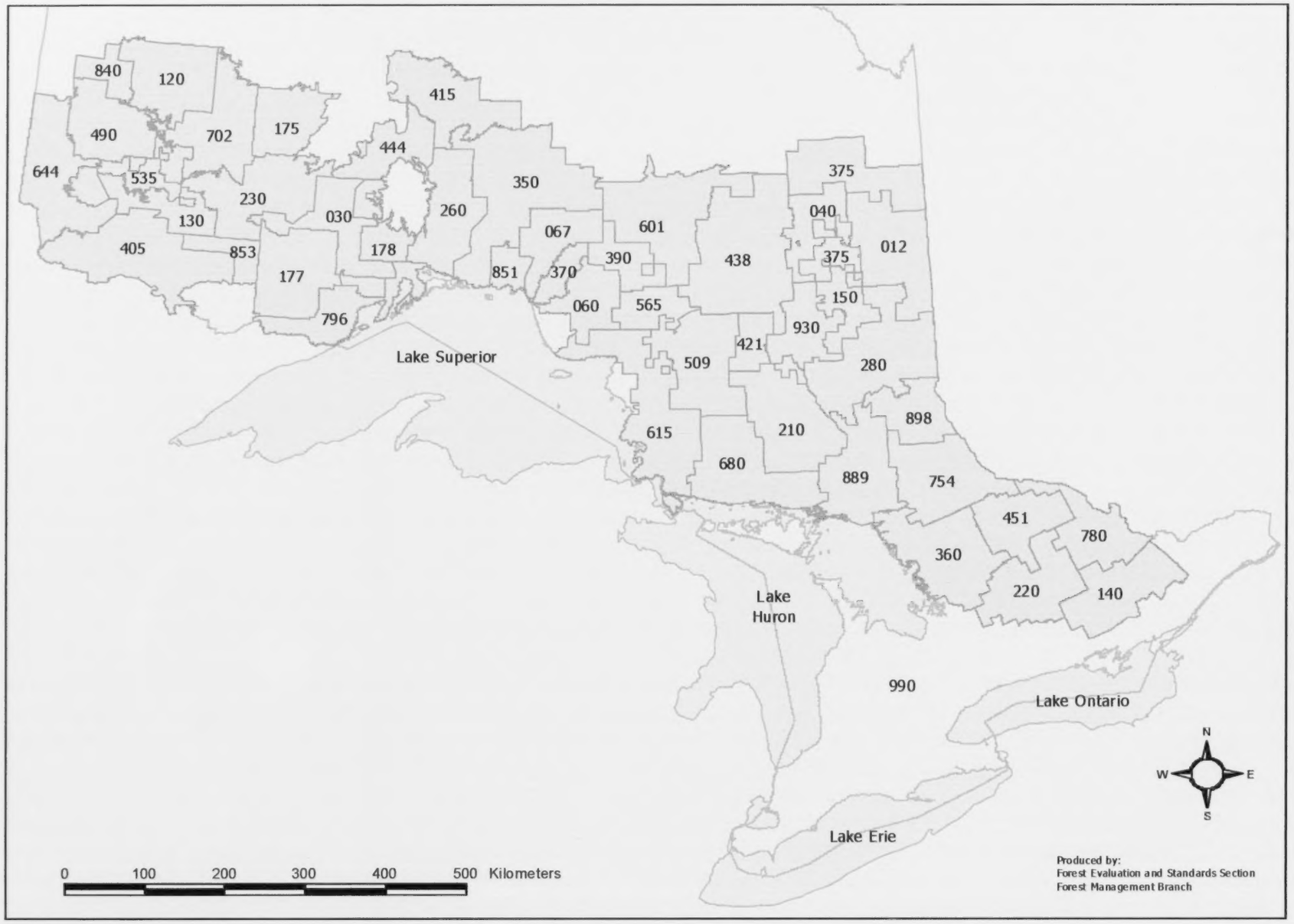
Appendix 1 - Key to management units (April 1, 2008)

(Designated under the Crown Forest Sustainability Act, Section 7)

MU #	MU Name	Status	Lead District
444	Armstrong Forest	CR	Thunder Bay
178	Black Sturgeon Forest	SFL	Nipigon
175	Caribou Forest	SFL	Sioux Lookout
405	Crossroute Forest	SFL	Fort Frances
177	Dog River-Matawin Forest	SFL	Thunder Bay
535	Dryden Forest	SFL	Dryden
230	English River Forest	SFL	Dryden
350	Kenogami Forest	SFL	Nipigon
644	Kenora Forest	SFL	Kenora
702	Lac Seul Forest	SFL	Sioux Lookout
260	Lake Nipigon Forest	SFL	Nipigon
796	Lakehead Forest	SFL	Thunder Bay
415	Ogoki Forest	SFL	Nipigon
851	Pic River Ojibway Forest	SFL	Nipigon
840	Red Lake Forest	SFL	Red Lake
853	Sapawe Forest	SFL	Fort Frances
030	Spruce River Forest	SFL	Thunder Bay
120	Trout Lake Forest	SFL	Red Lake
130	Wabigoon Forest	SFL	Dryden
490	Whiskey Jack Forest	SFL	Kenora
615	Algoma Forest	SFL	Sault Ste. Marie
067	Big Pic Forest	SFL	Wawa
370	Black River Forest	SFL	Wawa
375	Cochrane-Moose River	CR	Cochrane
438	Gordon Cosens Forest	SFL	Hearst
601	Hearst Forest	SFL	Hearst
012	Iroquois Falls Forest	SFL	Cochrane
565	Magpie Forest	SFL	Wawa
509	Martel Forest	SFL	Chapleau
390	Nagagami Forest	SFL	Wawa
150	Nighthawk Forest	SFL	Timmins
754	Nipissing Forest	SFL	North Bay
680	Northshore Forest	SFL	Sault Ste. Marie
421	Pineland Forest	SFL	Chapleau
930	Romeo Malette Forest	SFL	Timmins
040	Smooth Rock Falls Forest	SFL	Cochrane
210	Spanish Forest	SFL	Sudbury
889	Sudbury Forest	SFL	Sudbury
898	Temagami	CR	North Bay
280	Timiskaming Forest	SFL	Kirkland Lake
060	White River Forest	SFL	Wawa
451	Algonquin Park Forest	AFA	Algonquin Park
220	Bancroft-Minden Forest	SFL	Bancroft
360	French-Severn Forest	SFL	Parry Sound
140	Mazinaw-Lanark Forest	SFL	Bancroft
780	Ottawa Valley Forest	SFL	Pembroke
990	Southern Ontario	n/a	Various

Status:

SFL	Sustainable Forest Licence
CR	Crown Managed
AFA	Algonquin Forest Authority



Appendix 2 - Forest Management Plans Approved for Implementation in 2007, 2008, 2009 and Plans Scheduled for Approval and Implementation in 2010, 2011 and 2012

MU NO.	MU Name	Lead District	Region
Plans Approved for Implementation in 2008			
175	Caribou Forest	Sioux Lookout	NW
375	Cochrane-Moose River	Cochrane	NE
150	Nighthawk Forest	Timmins	NE
415	Ogoki Forest	Nipigon	NW
840	Red Lake Forest	Red Lake	NW
130	Wabigoon Forest	Dryden	NW
060	White River Forest	Wawa	NE
Note: A 2-year contingency plan was prepared for the Cochrane-Moose River Forest (375).			
Plans Approved for Implementation In 2009			
177	Dog River-Matawin Forest	Thunder Bay	NW
230	English River Forest	Dryden	NW
360	French-Severn Forest	Parry Sound	S
565	Magpie Forest	Wawa	NE
754	Nipissing Forest	North Bay	NE
930	Romeo Malette Forest	Timmins	NE
898	Temagami	North Bay	NE
120	Trout Lake Forest	Red Lake	NW
490	Whiskey Jack Forest	Kenora	NW
Note: A 3-year contingency plan is being prepared for the Whiskeyjack Forest (490). The Dog River-Matawin Forest (177) Plan was renewed 1 year early.			
Plans Scheduled for Implementation In 2010.			
615	Algoma Forest	Sault Ste. Marie	NE
451	Algonquin Park Forest	Algonquin Park	S
444	Armstrong Forest	Thunder Bay	NW
375	Cochrane-Moose River	Cochrane	NE
438	Gordon Cosens Forest	Hearst	NE
012	Iroquois Falls Forest	Cochrane	NE
350	Kenogami Forest	Nipigon	NW
680	Northshore Forest	Sault Ste. Marie	NE
853	Sapawe Forest	Fort Frances	NW
040	Smooth Rock Falls Forest	Cochrane	NE
210	Spanish Forest	Sudbury	NE
889	Sudbury Forest	Sudbury	NE
Note: The Armstrong (444) and Lake Nipigon (260) Forests are proposed to be amalgamated into the Lake Nipigon (815) Forest in 2011. The Iroquois Falls (012) Forest, Cochrane-Moose River (375) Forest, Nighthawk (150) Forest and Smooth Rock Falls (040) Forest are proposed to be amalgamated into the Cochrane Area (110) Forest in 2010. A 1 year contingency plan has been prepared for the Kenogami (350) Forest.			
Plans Scheduled for Implementation in 2011			
220	Bancroft-Minden Forest	Bancroft	S
370	Black River Forest	Wawa	NE
178	Black Sturgeon Forest	Nipigon	NW
535	Dryden Forest	Dryden	NW
350	Kenogami Forest	Nipigon	NW
644	Kenora Forest	Kenora	NW
702	Lac Seul Forest	Sioux Lookout	NW
260	Lake Nipigon Forest	Nipigon	NW
509	Martel Forest	Chapleau	NE
140	Mazinaw-Lanark Forest	Bancroft	S
390	Nagagami Forest	Wawa	NE
780	Ottawa Valley Forest	Pembroke	S
851	Pic River Ojibway Forest	Nipigon	NW
421	Pineland Forest	Chapleau	NE
030	Spruce River Forest	Thunder Bay	NW
280	Timiskaming Forest	Kirkland Lake	NE
Note: Black River (370) and Pic River Ojibway (851) Forests are proposed to be amalgamated into the Pic River (965) Forest in 2011. The Black Sturgeon (178) and Spruce River (030) Forests are proposed to be amalgamated into the Black Spruce (035) Forest in 2011. The Armstrong (444) and Lake Nipigon (260) Forests are proposed to be amalgamated into the Lake Nipigon (815) Forest in 2011.			
***Operational Planning for Implementation in 2012**			
67	Big Pic Forest	Wawa	NE
405	Crossroute Forest	Fort Frances	NW
601	Hearst Forest	Hearst	NE
796	Lakehead Forest	Thunder Bay	NW
Note: Starting in 2007, plan terms were increased from 5 to 10 years. Detailed operational planning for the 2nd five years of the 2007 plans will be completed in 2011 for implementation in 2012.			

Appendix 3 - Forest Renewal Charges for 2008/09 ($ per cubic metre)

		Rates Charged by Tree Species or Groups of Species								
MNR Region	Management Unit Name	White & Red Pine Category 1	White & Red Pine Category 2	Hemlock & Cedar	Spruce / Jack Pine / Balsam Fir / Larch	Poplar	White Birch	Hardwood Grade 1	Hardwood Grade 2	Mixed Product
Northwest	Armstrong Forest	5	5	5	5	1	1	1	1	0.25
	Black Sturgen Forest	11	11	6	8	1	1	8	1.5	0.25
	Caribou Forest									
	Apr. 1,2008 - May 31,2008	11	11	3	3	0.75	0.75	8	1.5	0.25
	Jun. 1,2008 - Mar. 31,2009	11	11	0.5	0.5	0.75	0.75	8	1.5	0.25
	Crossroute Forest	8	8	0	4.65	0.62	0.62	1.5	0.5	0.25
	Dog River - Matawin Forest	11	11	4.5	5	0.25	0.25	8	1.5	0.25
	Dryden Forest	4	4	4	4	0.75	0.75	2	0.75	0.25
	English River Forest	11	11	6	1.5	0	0	8	1.5	0.25
	Kenogami Forest	11	11	6	6	0.5	0.5	1	1	0.25
	Kenora Forest									
	Apr. 1,2008 - Jan. 31,2009	5	5	3	3	0.5	0.5	8	1.5	0.25
	Feb. 1,2009 - Mar. 31,2009	5	5	3	3	0.5	0.5	8	1.5	3
	Lac Seul Forest	11	11	5.5	5.5	1	1	8	1.5	0.25
	Lake Nipigon Forest									
	Apr. 1,2008 - May 31,2008	3.75	3.75	3.75	3.75	0.5	0.5	8	1.5	0.25
	Jun. 1,2008 - Mar. 31,2009	5	5	5	5	1	0.5	8	1.5	0.25
	Lakehead Forest	6	6	1	6	1	1	1	1	0.25
	Ogoki Forest	11	11	6	7	1	1	8	1.5	0.25
	Pic River Ojibway Forest	11	11	6	6	1	1	8	1.5	0.25
	Red Lake Forest	6	6	3.5	4.15	0.5	0.5	8	1.5	0.25
	Sapawe Forest	6	6	2	5	0.5	0.5	8	1.5	0.25
	Spruce River Forest									
	Apr. 1,2008 - Apr. 30,2008	5	5	5	2	0.25	0.25	1	1	0.25
	May 1,2008 - Mar. 31,2009	5	5	5	2	1	1	1	1	0.25
	Trout Lake Forest	11	11	3.15	3.15	0.5	0.5	8	1.5	0.25
	Wabigoon Forest	11	11	3.3	3.3	0.5	0.5	0.5	0.5	0.25
	Whiskey Jack Forest	4	4	3	3	1	1	8	1.5	0.25
Northeast	Algoma Forest	5.12	5.12	0.8	3.33	0.32	0.32	4	0.64	0.25
	Big Pic Forest									
	Apr. 1,2008 - May 31,2008	11	6	4.5	4.5	0.5	0.5	8	1.5	0.25
	Jun. 1,2008 - Mar. 31,2009	11	6	4.25	4.25	0.5	0.5	8	1.5	0.25
	Black River Forest	11	11	6	1.75	0.5	1	8	1.5	0.25
	Cochrane - Moose River Forest	11	6	0.5	0	0	0	8	1.5	0.25
	Nighthawk Forest	4.36	4.36	4.36	4.36	0.5	0.5	0.5	0.5	0.25
	Gordon Cosens Forest	11	11	1	4.7	0.5	0.5	8	1.5	0.25
	Hearst Forest	11	11	1	5	1	1	8	1.5	0.25
	Iroquois Falls Forest	11	11	2	6	0.56	0.56	8	1.5	0.25
	Magpie Forest	11	11	4.5	3.25	1	1	8	1.5	0.25
	Martel Forest	11	11	1	3.58	0.5	0.5	8	1.5	0.25
	Nagagami Forest	11	11	1	4	0.5	0.5	8	1.5	0.25
	Nipissing Forest	11	6	0.5	6	0.5	0.5	8	1.5	0.25
	Northshore Forest	7.25	7.25	0.5	4	0.5	0.5	8	0.5	0.25
	Pineland Forest	11	11	0.6	4.5	0.6	0.6	8	1.5	0.25
	Romeo Malette Forest	6	6	4.3	5	0.5	0.5	8	1.5	0.25
	Smooth Rock Falls Forest	11	11	0.5	3.34	0.5	0.5	8	1.5	0.25
	Spanish Forest	7.75	7.75	1	4	0.5	0.5	8	1.5	0.25
	Sudbury Forest	10	6	0.5	5	0.5	0.5	8	1.5	0.25
	Temagami	11	6	6	5.67	0.5	0.5	8	1.5	0.25
	Timiskaming Forest	11	11	4.8	2.6	0.13	0.13	8	1.5	0.25
	White River Forest	11	11	1	5	0.5	0.5	8	1.5	0.25
Southern	Algonquin Park Forest	4.75	4.75	0.1	0.1	0.1	0.1	4.75	0.1	0.25
	Bancroft - Minden Forest	11.5	0.05	0.05	0.05	0.05	0.05	8	0.05	0.25
	French - Severn Forest	11	3	2	6	1	2	8	1	0.25
	Mazinaw - Lanark Forest	11	2.15	2.15	2.15	2.15	4	9	4	0.25
	Ottawa Valley Forest	11	2	6	6	1	1	8	2	0.25
	Southern Ontario	12.5	5	6	6	1.5	1.5	8	1.5	0.25

Appendix 4 - Forest-dependent communities in Ontario

Census Subdivision	Subdivision Type	2006[1] Population	Labour Force	Forestry Workers	Percent Forestry
Dubreuilville	Township	773	450	280	62.2%
James	Township	414	195	90	46.2%
White River	Township	841	580	245	42.2%
Red Rock	Township	1,063	460	190	41.3%
Dorion	Township	379	250	95	38.0%
Hilton	Township	243	55	20	36.4%
Terrace Bay	Township	1,625	805	290	36.0%
Ear Falls	Township	1,153	715	230	32.2%
Constance Lake 92	Reserve	702	220	70	31.8%
Greenstone	Municipality	4,906	2,680	850	31.7%
Smooth Rock Falls	Town	1,473	660	195	29.5%
Mattice-Val Cote	Township	772	375	110	29.3%
Ignace	Township	1,431	780	225	28.8%
Nipigon	Township	1,752	790	215	27.2%
Atikokan	Township	3,293	1,650	445	27.0%
Brudenell, Lyndoch and Raglan	Township	1,497	765	205	26.8%
South Algonquin	Township	1,253	610	160	26.2%
Calvin	Township	608	240	60	25.0%
Baldwin	Township	554	245	60	24.5%
Hearst	Town	5,620	3,020	730	24.2%
Opasatika	Township	280	145	35	24.1%
Cochrane, Unorganized, North Part	Unorganized	2,447	1,230	295	24.0%
Iroquois Falls	Town	4,729	2,050	465	22.7%
Papineau-Cameron	Township	1,058	515	115	22.3%
Chapleau	Township	2,354	1,255	275	21.9%
Fauquier-Strickland	Township	568	290	60	20.7%
Mattawa	Town	2,003	785	160	20.4%
Cochrane	Town	5,487	2,750	555	20.2%

1 Source: Statistics Canada 2006 Census of Population

Notes:
Data for communities above 20% Forestry Workers in Labour Force shown.
Data calculated from only those communities with population greater than or equal to 240.
Forestry Workers is an aggregate of the following 4 digit classification:

Code	Description
1131	Timber tract operations
1132	Forest nurseries and gathering of forest products
1133	Logging
1153	Support activities for forestry
3211	Sawmills and wood preservation
3212	Veneer, plywood and engineered wood product manufacturing
3219	Other wood product manufacturing
3221	Pulp, paper and paperboard mills
3222	Converted paper product manufacturing

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